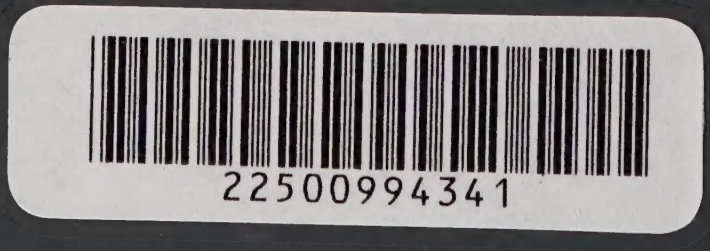
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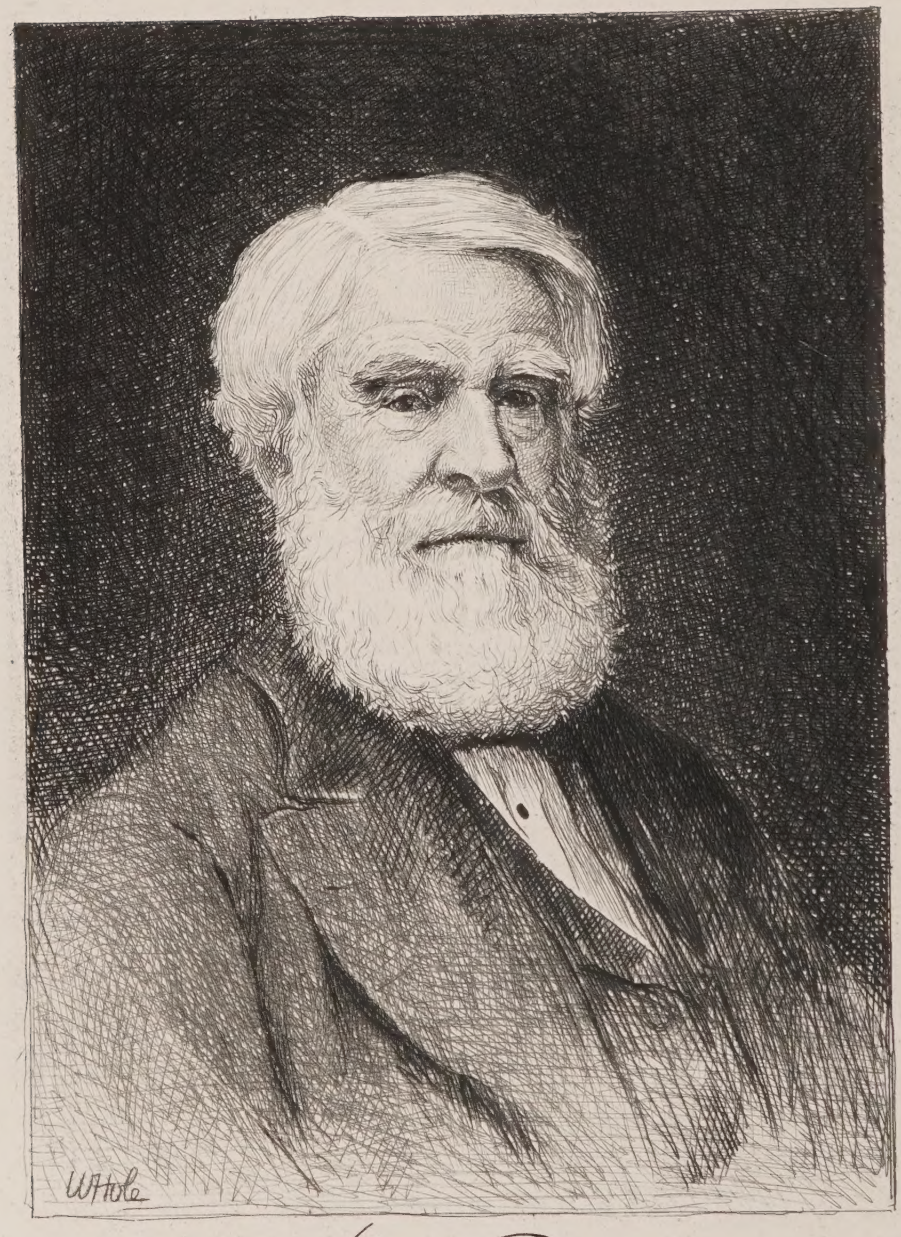
THE LIFE

OF

SIR ROBERT CHRISTISON, BART.



R. Chittick (Aged 81)

THE LIFE

OF

SIR ROBERT CHRISTISON, BART.

M.D., D.C.L. Oxon., LL.D. Edin.

PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF EDINBURGH,
PHYSICIAN TO THE QUEEN FOR SCOTLAND, ETC.

EDITED BY HIS SONS

IN TWO VOLUMES

VOL. II.—MEMOIRS

WILLIAM BLACKWOOD AND SONS
EDINBURGH AND LONDON
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MEMOIRS.

CHAPTER I.

PRINCIPAL EVENTS IN THE MIDDLE PORTION OF SIR ROBERT'S LIFE.

In the Introduction to these volumes we have explained the obstacles which prevented us from completing the history of Sir Robert Christison in a consecutive narrative, and the reasons which induced us to adopt in this volume the method of treating each division of his life-work separately. But before proceeding to this, we shall describe shortly the chief events in his career during the five-and-twenty years subsequent to 1830—the date when his autobiography abruptly ends,—a period which it is not in our power to elucidate by any writings of his own.

We have already seen that Sir Robert originally intended to devote himself entirely to his University duties, and to researches in the sciences connected with his Chair; and the zeal with which he entered on these scientific studies is shown by a series of articles on

chemical and medico-legal subjects in the Edinburgh Medical and Surgical Journal. Even Physic he intended to pursue, with scientific objects in view only. But the number of medical students at the University rapidly declined about this time, so that he was reluctantly compelled to forswear his love of original research, and take to practice as a physician, in order to make a living. In 1832, the same year in which he was transferred to the Chair of Materia Medica, he became one of the University teachers of Clinical Medicine. It was long, however, before he got into extensive practice, as the field was already well occupied by Davidson, Abercrombie, and Alison; and it was not till he was about fifty years of age that his practice could be called large. Much to his own satisfaction, it never became so large as to be burdensome during the twenty years when it was at its height, as he subordinated it to his University and other duties, and even to that love of the country, and particularly of the mountains, which was a passion with him, and the indulgence of which no doubt braced his energies to their full power. But if a physician's life was not his original or favourite object, he followed it with zeal and faithfulness, and in all its branches, for he was much consulted in insanity and in questions of public health, as well as in ordinary medical cases; and he readily undertook the duties of chief medical adviser to the Standard Life Assurance Company, and of Visiting Physician to the General Prison at Perth, when these appointments were offered to him. His eminence in medicine was

twice recognised by the Royal College of Physicians of Edinburgh, as he was twice elected to be their President. In addition to his active professional pursuits, Sir Robert was almost continuously engaged during this period in literary labour. He had an early experience of editorial work as joint-editor with Dr Craigie of the Edinburgh Medical and Surgical Journal; and subsequently for several years he conducted the Edinburgh Monthly Medical Journal, in conjunction with the most eminent University medical Professors of the day, and the not less gifted but retiring Dr William Robertson, who was the acting editor. But much more serious labours with the pen than these filled up his leisure hours. Besides contributing many papers to various scientific societies and journals, including a valuable article on Fever in Tweedie's Library of Medicine in 1840, he brought out three successive editions of his work on Poisons between the years 1832 and 1845; his treatise on Disease of the Kidneys appeared in 1839, the first edition of his Dispensatory in 1842, and the second in 1848. The long list of his services to medicine at this most active period of his life is not yet exhausted, as he rendered invaluable aid in the preparation of the last edition of the Edinburgh Pharmacopœia in 1841: services which were renewed subsequently, when he acted as chairman of the Medical Council Committee for drawing up the first Pharmacopœia of the United Kingdom.

All this time Sir Robert by no means neglected his first loves in science—Chemistry and Medical Juris-

prudence. For many years after quitting the Chair of Medical Jurisprudence, he continued to be the chief scientific adviser of the Crown in the most important criminal trials for poisoning both in Scotland and England, the last case in which he appeared to give evidence being that of Madeleine Smith in 1857. He was also frequently engaged in chemical, dietetic, and sanitary inquiries, at the instance of the Crown, of manufacturers, and of private individuals.

Notwithstanding these multifarious occupations, Sir Robert found time to take a considerable part as a citizen. He acted as a manager of the Royal Infirmary, and as one of the directors of the Royal Edinburgh Asylum for the Insane; and he took a great interest in all questions concerning the health or amenity of the city.

Of domestic incidents during the period under review, the most important was the greatest trial of his life—the long and painful illness of his wife, which proved fatal in 1849. Reserved and even somewhat unbending and stern in manner as Sir Robert was, he had a tender and affectionate heart: he felt this trial keenly, and long afterwards occasionally showed, almost inadvertently, the loving recollection of his wife, which he retained as long as his own life lasted. Dr John Brown has thus recorded a characteristic anecdote of his friend's affectionate thoughtfulness:—

"His wife, a woman of great beauty, *and better*, was in her last long illness. She was going to the country for a month, and her husband heard her give orders that a piece of worsted work which she had

finished should be *grounded*, and made up as an ottoman, and ready in the drawing-room on her return. A few days before that, he asked if it was completed: it had been totally forgotten. He said nothing; but, getting possession of the piece, he sat up for two or three nights, and *grounded* it with his own hands, had it made up, and set his wife down on it, as she had wished. Is not that beautiful?—a true, manly tenderness, worth much and worth remembering. 'Out of the strong comes forth sweetness.'"

Having thus briefly reviewed the chief characteristics of Sir Robert's career, during the five-and-twenty years' dearth of original materials for its elucidation from about 1830 onwards, we proceed to show forth the later events of his life, as he has himself described them in numerous letters and journals which still exist.

CHAPTER II.

UNIVERSITY.

TOWN COUNCIL DOMINATION—SCOTTISH UNIVERSITIES BILL, 1858—PROGRESS OF THE BILL—BENNETT WORKS HARD FOR IT—LETTER TO SIR WILLIAM STIRLING-MAXWELL ON TOWN COUNCIL PATRONAGE—OPINION OF HIS OWN ELECTION TO MATERIA MEDICA CHAIR—PATRONAGE AS MODIFIED STILL FAULTY—PATRONAGE ANECDOTES—MEETING ON UNIVERSITY REFORM—CHIEF-JUSTICE CAMPBELL—ELECTION OF CHANCELLOR—APPOINTED SENATUS ASSESSOR IN THE COURT—FIRST MEETING OF THE COURT—APPOINTED COUNCIL'S ASSESSOR IN THE COURT—UNIVERSITY REFORMS STILL REQUIRED—SCOTTISH UNIVERSITY REPRESENTATION IN PARLIAMENT—CONTESTS FOR REPRESENTATION OF EDINBURGH AND ST ANDREWS UNIVERSITIES.

THE number and variety of Sir Robert's avocations were greater than ordinarily fall to the lot of professional men. As chemist, medical jurist, professor, member of the General Medical Council, practising physician, medical adviser to a large Life Assurance Company, and to the Department of Prisons, his attention was directed to manifold subjects of a professional, medico-political, or scientific nature; and his strong sense of duty, together with the ardour of his temperament, impelled him not only to undertake

them all with his whole might, but frequently to go far beyond the bare fulfilment of his task, thereby striking out new paths of investigation, and throwing fresh light upon his subjects. It was the University, however, that always held the first place in his affections: for its sake he was ever ready to sacrifice other pursuits, whether pleasant or profitable; to its interests he devoted the largest part of his life, and the most continuous and energetic efforts of his mind. Thousands of his pupils, scattered over every quarter of the globe, can testify to his merits as a lecturer; and very many can speak of the personal interest he took in them as students, and the help and encouragement he gave them in their subsequent professional life. Comparatively few, however, know the important part he played in University affairs in general, as distinguished from the ordinary duties of his Chair. Yet during Sir Robert's long career the University passed through many hard struggles for freedom, for the maintenance of its rights, and for the increase of its usefulness, and in all these struggles he took a prominent and often the leading part. Inducted to the Chair of Medical Jurisprudence at the age of twenty-four, he made his first acquaintance with University affairs at a period which now seems strangely remote; and as time passed, while still young in years he was an old Professor, and hence had an influence greater than his age seemed to warrant. Gifted as he was with a clear head for business, a most retentive memory for details, an unusual capacity of expres-

sion, a commanding figure and presence, a dignified manner, and a powerful voice, he seemed formed by nature to be a leader of men; and as he enjoyed the full confidence of the professors in his integrity and the purity of his motives, it is no wonder that he rapidly came to the front in the business of the Senatus, and became the chief champion of the University in time of trouble.

Of all the struggles on behalf of the University in which Sir Robert was involved, the earliest, severest, and most continued was the conflict for emancipation from Town Council domination, which began in 1825 and did not end till 1858. It has been the fashion of late to represent the sway of the Town Council over the University as having been on the whole mild and beneficent—almost such as to justify the bold assertion of a Lord Provost in an official document, "that a certain moral necessity prevents their control which in theory is absolute, from being in fact ever wanton or oppressive." In the sixteenth chapter of the Autobiography, Sir Robert has shown not only what a very different view those took who suffered from their rule, but the disastrous results which flowed from it. And if we return to this subject, and emphasise his opinions by giving extracts from letters, written when the final struggle was at its height, or on looking back calmly at the results in after-years, it is partly because these letters contain information not given in the Autobiography, and partly because of the historic value of original accounts of events written at or near the time of

their occurrence, by one who so thoroughly understood their importance, and who took such a large share in them himself.

Truly it seems marvellous, as Sir Robert has remarked, that any defence should be attempted of the Town Council, either as rulers or patrons of the University, after their utter condemnation in both capacities, not only by the Universities Commission of 1828, but by the Burgh Commission of 1833—the latter composed of twelve lawyers, either eminent at the time or who afterwards rose to eminence, all Whigs, and therefore naturally biassed in favour of the municipality. Equally remarkable did it seem to him that, with such evidence in their hands, the Whig Governments never had the courage to attempt to give the University any relief, until Lord Advocate Moncreiff took up the subject nearly a quarter of a century afterwards. He was unable to carry out his intentions, as the Liberal party ceased to be in power at that very time, but relief did come from the succeeding Conservative Government; and here are Sir Robert's impressions of the final struggle.

"To A. C. 16*th May* 1858.

"The Bill seems to me a good workable measure, and in no respect more so than by transferring the government of our University *in toto* from the Town Council to a Rectorial Court of seven select men. Lord Advocate Inglis has not ventured so far as to take the patronage also from them; but a rectorial governing court cannot be long in existence without

the patronage following the government. *That* the Council are sufficiently far-seeing to discover, and hence they are moving heaven and earth to alter the clause which takes the government from them, and thus to maintain their tyranny. What the degree of that tyranny is you may have some notion of when I tell you that, by proving in their various actions at law their absolute dominion over us, and exercising it with a vengeance, they have at length disintegrated and demoralised the Senate, so that not over three or four members take any active part in the public affairs of the University, while about as many more have betaken themselves to toadying and earwigging the honourable patrons for their own ends."

"To A. C. 28*th June* 1858.

"We have all worked like Highland chairmen at flitting-time, and with such success in every Parliamentary quarter as to lead us to think the Bill quite safe. No one, except Bennett in London (who has toiled as if he had been a regiment instead of a single man), has worked with more heart and will than myself. Besides having facts more at my finger-ends than any other, it appears that I have a great deal more influence with many more important people than I was aware of. Were the opportunity given me of making one single half-hour speech after Adam Black in the House, I could leave him helpless, and persuade every man willing to be persuaded, of whom there are many. Public speaking is not much to my taste, but from what I have been compelled to

do within a few years—from the scanty preparation required—and from the way in which I am received, I think it was perhaps wrong in me not to have cultivated the art sooner."

"To A. C. 16*th July* 1858.

"I have just got to the close of three weeks of harder work than I have had for many years. Gradually the whole, or nearly the whole, of the agency business here, connected with the Scotch Universities Bill, fell upon my shoulders. Dr Bennett went to London, and did the work of a giant there. I have toiled with a will here—partly on account of the enormous boon suddenly placed within reach of our Universities, partly because I have waited thirty years for an opportunity of avenging all the miseries and indignities which the Town Council have annually subjected us to.

"The Lord Advocate's Bill deprived the Town Council entirely of the government of our University, and of the care and application of the funds. The Town Council sent up four deputies to try to save the keeping of the funds, but they found their mismanagement of the Trinity College Church Fund thrust in their faces, and most unexpectedly were compelled to desert that part of the field and to defend their patronage. They were amazed at the impetuosity and success of the assault, which had been prepared here by me, and in London by Bennett, and the result has been that the patronage has been taken from the general body of the Town Council by a compromise, and has been transferred to a Board

of seven Curators, of which the Town Council, however, are to appoint four."

The following extract from a letter to Sir William Stirling-Maxwell we give, because it describes evil influences, which cannot be said to be altogether eliminated from contests for vacant Chairs even in the present day:—

"To Mr STIRLING of Keir. *May* 1858.

"The Town Council has not improved in any material respect, as an elective body for University Chairs, since my candidature in 1832. Some influences have been lessened; others equally injurious have been made worse; and, above all, we have now the religious element in full sway—so that it is customary to find the members of one or another religious sect sticking together, even when the vacant professorship has not the remotest connection with theology. I know, for instance, in a late instance the Free Church influence was exerted with a pressure and an effect singularly contrasting with the want of connection between the vacant Chair and either theology at large or Free Church principles.

I need scarcely point out to you how peculiarly unfit a Town Council, composed of a variety of religious denominations, must be for exercising theological patronage; but the Medical Chairs in the gift of the Town Council are really not better circumstanced. For the lecturers of the extra-Academical School of Medicine are now a power-

ful and compact body, who exercise a heavy and sometimes sinister influence on the Town Council, in favour, naturally enough, of their own members. This is an influence which, if exerted in favour of a candidate of fair moderate abilities, and of some merely local name, it is extremely difficult for any candidate from a distance to resist successfully. Like other inappropriate influences to which the members of the Town Council are exposed, it is not likely to lead to a positively bad appointment. But it is very apt to occasion a mediocre one, which is very little better; and in particular, in face of such formidable opposition, no young rival of high promise would have any chance."

The succeeding extracts show Sir Robert's matured opinions on the patronage question, and refute the too easily received belief that the Town Council did exercise their powers as patrons successfully :—

Journal. "27*th July* 1870.—Yesterday the Town Council had a field-day on the late election of a Professor. Three of the members took occasion to abuse me — Professors generally, but me specially and by name—for my opinion of the election, and of town-councillors generally as patrons. They quite rightly judge that they owe emancipation of the University from their thraldom more perhaps to me than to any other—certainly than to any other member of the Senatus. It is probable they also know that they may utter any censure or misrepre-

sentation without risk of challenge from me; because for thirty-five years I have taken no notice of any censure of myself, my opinions, or my conduct, which may appear in a newspaper or journal—a rule which has been a great solace to me. But in spite of vows and long abstinence, I would dearly like to tilt with Councillor ——. He upbraids me with ingratitude, inasmuch as the Town Council made me a Professor at the early age of twenty-two. But, Councillor, I was not twenty-two when I was made Professor, nor did the Town Council make me one: it was the Crown that made me Professor, and at the age of twenty-four. Ten years later the Town Council translated me to the Chair of Materia Medica. But from the moment of election to the present day I never could get up a particle of feeling of gratitude for their act. They elected me by a narrow majority, and only four of the then thirty-three Councillors voted for no other reason than that they thought their man the best. I could not have carried the day but through influences quite alien from qualification, and without the aid of friends and their devices, such as no man of correct feeling could, without disgust, reconcile himself to see employed. Accordingly wrath took the place of gratitude: I denounced the system of election everywhere; and in three years I was called upon to state the result of my experience before the Burgh Commission, in evidence which may be seen in the Blue-book to be uncompromising.

"Does —— think he can extinguish with his babble the sentiments of a sufferer nearly forty years ago,

which all these forty years of further experience in the case of others has only tended to confirm?"

"To D. C. *July* 26, 1875.

"Yes, truly, the history of the Town Council of Edinburgh, from a professor's point of view and fifty-three years' experience, would be what an old friend used to call 'a caution.' I have somewhere notes I took immediately after my Materia Medica election, entitled 'Secret Reasons of a Town Council for choosing a Professor.' I have them somewhere, unless, in a fit of overflowing benevolence and universal philanthropy, I destroyed them.[1] But I remember there were only four who voted purely because they thought they voted for the right man—namely, Learmonth, old Blackwood, Alex. Campbell—now of Cammo—and the then Cox of Gorgie. One voted expressly, as he avowed to me, for ——, because 'he was asked by a leddy who had lately given him a good job;' another for the same reason, without avowing it; another for me, expressly because I was my uncle's nephew. Seven voted for their family doctor. Bennett could supply another case equally instructive, and much more amusing. People say, in a maundering way, 'And yet the Town Council, on the whole, chose well.' Did they do so, for example, when they preferred Home to Abercrombie for Gregory's Chair? and Wallace to Babbage for that of Leslie? By what narrow votes, moreover, have they repeatedly escaped shipwreck, and what enormous trouble and heartburning

[1] They still exist.

has it often cost to keep them right? There is nothing I look back to with so much self-approbation as that I became their steady and active foe as governors and patrons of the University from the year 1825, when they first did a just act in a most unjust fashion."

Sir Robert was by no means pleased that a share in the patronage was left to the Town Council by the Act of 1858. Some of their early appointments to the Court of Curators fell upon individuals who, in his opinion, represented the essence, as it were, of former prejudices and incapacity. And he was by no means singular in this discontent. At the very first meeting of the University Council, a motion was carried in favour of transferring the patronage to the University Court; and when, in the case of several vacancies in the Medical Faculty, candidates of pre-eminent merit, of whom Lister was one, were rejected, and when the election of another was seriously jeopardised by the influence brought to bear on the Town Council electors, a general feeling of disappointment, and even indignation, was aroused in the public mind, particularly outside of Edinburgh. In letters preserved by Sir Robert, we find that Sir David Brewster, stigmatising one election as "disgraceful," corresponded with the Premier and Lord Brougham on the subject; and that the latter, who had strongly recommended the unsuccessful candidate, saw clearly that his defeat was due to the local influences exerted against him.

On the whole, however, the relations between Town and Gown were now put upon a more rational footing, and no one rejoiced more than Sir Robert in the good understanding between the two which gradually sprang up, and which was so firmly cemented by the tact and good feeling of the late Principal, Sir Alexander Grant. With Lord Provost Sir Thomas Boyd, and some of his predecessors in office, Sir Robert worked most cordially, not only in the University Court, but in confidential consultations upon University affairs; and we cannot help thinking that, had he survived to the present day, consideration of more recent appointments made by the Town Council to the Court of Curators would have induced him to modify his objection to their having a share in the patronage. The objection to the Town Council, or any other body, having a clear majority of representation in the Curatorial body would have remained.

While the fate of Town Council patronage was hanging in the balance in Parliament, Sir Robert furnished Sir William Stirling-Maxwell with many examples of the evils resulting from it. This information was intended to be used in Parliament, but no opportunity occurred. In some instances the painful and humiliating process of canvassing, to which candidates for vacant Chairs had to submit, was relieved by the oddity of the adventures encountered. Thus, on one occasion, when a Bailie was asked by a candidate for his vote, he replied, "Well, Mr ——, I tell you honestly and plainly

that I don't care that" (snapping his fingers) "for the Chair of ——; but whoever the Provost votes for, I'll vote for somebody else!" and with this novel and somewhat vague pledge the candidate was obliged to be content. The following strange query was put to the same candidate by one of the Councillors,—"Are ye a jined member?" The candidate, an Englishman, looked, as he was, completely puzzled, when, to help him out, the Councillor added, "Are ye a jined member o' onie boadie?" Which question we shall leave as a riddle to our English readers.

One of the worst forms of influence was that brought to bear on the tradesmen among the Town Councillors by their lady customers. We have already seen that, during his canvass for the Materia Medica Chair, Sir Robert was told by a Councillor that he would vote for another candidate, "because he was asked by a leddy who had lately given him a good job." But Sir Robert used also to relate that a lady called, in his interest, at the shop of another Councillor, and found several other lady canvassers there. They all attacked the unfortunate Councillor in favour of their respective *protégés;* and at last, losing patience, he exclaimed, "O leddies, leddies! I wish ye would gang awa' hame, and let me atten' to my business!"

Dr Bennett had also many strange adventures in the course of his canvass for the Chair of the Institutes of Medicine. Among others he used to relate with much humour how a worthy butcher, being asked

for a private interview, took him behind the carcass of an ox, and wiped the chopping-block with his apron as a chair for the candidate, preparatory to discussing his merits as a physiologist.

We conclude these anecdotes with the humorous opinion expressed by Lord Cockburn when told the result of one of the elections. "Well done! The Town Council have acted with perfect consistency throughout. They first rejected the best man, then the next best, and finally chose the worst of the two that were left!"

So deep-rooted was Sir Robert's interest in everything connected with University Reform, that in 1879, long after the events of which we are now speaking, during his leisure moments he made up a little book from newspaper accounts, which he entitled "Reports of Initial Proceedings towards University Reform." He bound this book with his own hands, and wrote a short preface to it, from which we extract the following:—

"The most important by far of all the meetings on the subject of University Reform, was that held at Edinburgh on 30th December 1857, by the 'Association of Graduates for the Extension and Improvement of the Universities of Scotland.' It was remarkable for the eminence of the men who addressed the meeting, the principles which they promulgated, the outspoken language of all, whatsoever their political creed or party, and above all, for being presided over by the Lord Chief-Justice of England. His presence, and the unflinching terms in

which he advocated the claims of the Scottish Universities on the State, gave the cue to the Liberal party in Scotland, which had looked till then rather coldly on the movement, and had, on the occasion of the first Parliamentary Reform in 1831, absolutely refused to our Universities all share in the representation of the country. Lord Campbell—as will be seen from the report of his opening speech—with great candour and in blunt terms, declared that the Reform Act, in which he had himself taken an active share, had in some respects disappointed him; that the commercial men, who had been introduced in crowds into the House of Commons, had not improved it as a branch of the Legislature; that the new franchise threatened to exclude young men of talent and education, who previously had ready access to the House, and often became its most famous members; and that those who framed the Reform Bill looked more to the extension of the suffrage than to the formation of a good House of Commons."

To this extract we add a part of Sir Robert's *résumé* of his own speech, showing his views at this early period on one important aspect of University Reform. "He had been much struck, in the course of his experience as a Professor, with the comparatively small influence which the Universities of Scotland had on society, considering their great celebrity in other countries; because there could be no question that, however much they may be esteemed in Scotland, they were still more highly esteemed in distant countries. He traced this want of due

influence on society very much to the absolute want of any connection between the graduates and their Universities from the moment of their graduation; and among the various measures by which this evil was to be counteracted, he held that they must in the first instance give the graduates the political privilege of electing a member or members to represent them in Parliament; they must give them a share in the government of the Universities; and they must find out by every possible means where the graduates might be of service in improving the system of teaching. In regard to this last point, many important suggestions could be obtained from experienced professors."

When the University gained new life and vigour under the Act of 1858, he who had so long championed it in the day of adversity was naturally called upon to take a leading part in starting it on a new career. As a leading Conservative in the Council, Sir Robert moved the election of the Duke of Buccleuch as Chancellor; but he did so only from a feeling of loyalty to his party, as his own strong opinion was that the nomination of Lord Brougham should have been accepted by the Conservatives, and his reluctance was all the greater as the Duke's consent to his nomination had not been obtained. With his speech, he says, his own party was well pleased—"But the opposite faction must have been much the reverse, for I was assailed with great pertinacity and virulence in all their newspapers for at least fourteen days afterwards." Among other calumnies, he was accused by a newspaper cor-

respondent "of having done his utmost to prevent a certain class of medical graduates from being recognised in the Act as members of the University." "The real secret is," he says, "that I used my utmost influence to get them introduced when originally excluded; and in point of fact, they owe their recognition chiefly, perhaps entirely, to myself and Bennett." Even in this instance he adhered to his rule of never taking notice of misrepresentations in newspapers of his actions. He says, however, "Though not inclined to retort *newspaperishly*, I would assuredly have taken the fabricator of the falsehood by the throat (figuratively, of course), if I could have ascertained which of three men was the culprit."

In the election of the representative of the Council in the Court he supported Sir John M'Neill; and although Sir John was defeated, Sir Robert, who was often represented to be a violent partisan, writes thus generously of the victors: "Sir John went down, of course, with the Duke. In that case, however, as in the case of the Chancellorship, the lot fell on a sterling good man,—Maitland, the Solicitor-General."

Although disappointed to some extent in the result of these elections, he was soon gratified by receiving the appointment of Assessor for the Senatus in the University Court. "Dr Robert Lee proposed that I should be the Senatus member, in a short address so strong that it took with almost all. Swinton, who was looked to by many as the likely

man, himself seconded the motion; and after a fitting explanation from me, and warm commendation of Swinton, the nomination passed unanimously in a very full Senate."

Sir Robert has left an account of the first meeting of the Court, which may be shortly noticed here. The object of the meeting was to elect three representatives to the Court of Curators of Patronage.

"The Solicitor-General, Maitland, interpreted the Act to mean that the members should be chosen externally to the Court, pointed out how difficult it would be to make a selection of three from its own body, and moved a nomination of persons not belonging to the Court.

"Bailie Grieve, Assessor of the Town Council, maintained that the members should all be chosen from their own body, and moved the appointment of the Lord Provost, Sir D. Brewster, and the Solicitor-General.

"Dr Christison denied that their nomination as governors implied their self-nomination as patrons. For instance, he would himself decline being a patron though he assented to be a governor. Besides, he said, 'it is desirable to extend the number of officials who are to take interest in the University, and therefore to appoint other men of position and talent than those already interested as members of Court.' Further, as the only Conservative and Established Churchman in the Court, he pointed out that if the Court does not go beyond itself, the whole Court of Patronage will consist of Liberals, and be without

a single representative of the Established Church; that it would be most dangerous to alienate the whole Conservative party, and by the same act the whole Church party. He therefore seconded the Solicitor-General.

"*Bailie Grieve.* Dr Christison is the first to moot the element political and the element ecclesiastical, —both very bad, and which should have nothing to do with the Court's deliberations.

"*Dr Christison.* Bailie Grieve is quite mistaken. The political and ecclesiastical elements have from the first been staring every man straight in the face. Dr C. only asks the Court to look at them there, and forecast the result.

"One after another,—Dr John Brown, Sir James Melville, and the Lord Provost, Brown Douglas,—supported Dr Christison's view; and finally the Rector, Mr Gladstone, gave his opinion 'that the Court must go out of our own body for one or more, but that we may correctly also appoint one or more from ourselves. The political and ecclesiastical elements cannot be evaded; the Court ought to introduce a Churchman and a Conservative into the Court of Patrons.'"

The result was that Mr Gladstone, Mr Mure, Conservative ex-Lord Advocate, and the Solicitor-General, were appointed.

A new career of usefulness now opened to Sir Robert, and until his retirement from active life in 1877, he fulfilled the duties of Assessor for the Senatus. He was rarely absent from the meetings, and perhaps no member was, or could have been, as useful as

he, seeing that no one had the long experience and profound knowledge of University affairs which he possessed. Besides discharging the ordinary duties of the assessorship, he acted as secretary of the Court, during the first six years of its existence, without salary, and sometimes to his loss professionally.

On the day of Dr Christison's resigning the secretaryship, Mr Gladstone took leave of the Court at the end of his second period of office, and concluded his remarks thus:—

"Having presumed to say thus much, he felt that justice required him to say more; and to express what he was certain was the universal feeling of the Court with respect to the services of Dr Christison as its secretary. That eminent gentleman, whose professional calls might well be regarded as absorbing, had undertaken the duties of the office when the body, newly formed, had none of the advantages of rule or precedent, and had unsparingly devoted his time to the consideration and explanation of subjects coming before the Court, and to the regular transaction and record of the business. He could not but express what he believed to be the common sentiment of gratitude to Dr Christison for his disinterested, able, and efficient labours."

The serious illness in 1877, which led to the resignation by Sir Robert of the Chair of Materia Medica, caused him also to resign his assessorship for the Senatus. The office did not necessarily fall when he ceased to be a Professor, but he felt that the Senatus ought to be in the position of being represented in the

Court by one of their own body. On his resignation the Court passed the following minute :—

"Having received with the deepest regret the resignation of the Chair of Materia Medica by Sir Robert Christison, the University Court desire to record their sense of the loss thereby sustained by the University of Edinburgh, of which Sir Robert has so long been one of the chief ornaments. As a teacher for ten years of Medical Jurisprudence, and of Materia Medica for no less than forty-five, he has laid more than one generation of pupils under the deepest obligations. To the Senatus Academicus his services have been acknowledged to have been most valuable. But special and grateful recognition must here be made of the advantage which has been derived from his attendance as a member of this Court, in which, by successive elections, he has held a seat ever since its institution under the Universities Act, and where his varied knowledge, sound judgment, and long intimate acquaintance with academic traditions, have been of the greatest possible assistance in all its deliberations. His present colleagues in the Court express an anxious hope that his retirement from active duty as a Professor may be attended by complete restoration to health, and that his well-earned leisure may be gladdened by the continued prosperity of the University whose interests he has done so much to promote."

But Sir Robert was not destined to die altogether out of University harness. In October 1879, having recovered strength in some degree, he was unanimously elected by the General Council their representative in the Court, and this office he held till his death.

It would be altogether beyond the scope of our subject were we to give any account of the useful work done by Sir Robert in the University Court;

but the unparalleled opportunities which he enjoyed as a member of the Senatus for nearly sixty years, and as Assessor in the Court for more than twenty years, of observing the working of the University constitution, warrant us in presenting some of the conclusions to which he had come as to the reforms which are desirable, and the powers which the different ruling bodies of the University should possess. And we feel the more constrained to do so, as a party within the University appears to aim at reversing in some important points the lifelong policy of Sir Robert, by reducing the Senatus to a condition of impotence in the management of University affairs, analogous to that which they endured under the rule of the Town Council, and from which they were rescued with so much difficulty, and with so much benefit to the University, after thirty-three years of suffering and conflict.

Sir Robert's evidence will be found in detail in the Report of the Universities Commission of 1876; but his opinions, in a somewhat amended form, were given at a still later date, in 1878, in a letter to the Rev. Professor Flint. We therefore give the essential parts of this letter in the first place, and add some portions of the evidence before the Commission on one or two important subjects which are only slightly dealt with in the letter:—

"*October* 10, 1878.

"My dear Dr Flint,—The following are my views respecting the points you mention in the Universities Commissioners' Report.

"I think that the addition of another member of Senatus to the University Court is advisable. I believe all my former colleagues in the Court will say that the Court derived important information from my thorough acquaintance with the questions which often came before them relative to the Medical Faculty, and that we sometimes felt the absence of such familiarity on the part of some members with the business of the Faculty of Arts. Law and Divinity seldom gave occasion to questions before the University Court, and those which did arise were simple and easily disposed of.

"As the General Council influence the affairs of the University only as advisers, I think that influence may be usefully increased by giving them two members, instead of one only, in the Court.

"My clear opinion is that, except in regard to those matters as to which the Court are entitled expressly by the Act to 'review' the proceedings of the Senatus, the power of the Court should be limited to the disposal of appeals. For, *firstly*, one can scarcely imagine a case so bad as that no member of Senatus, no member of the General Council, and no student, would step forth to appeal against an unjust or inexpedient resolution. *Secondly*, a general power of ultroneous 'review,' apart from an appeal, would involve a complete sacrifice of independence on the part of the Senatus—thus reviving in another form the galling thraldom from which the Act freed them. *Thirdly*, the business of the Court would be so increased, that I greatly doubt

whether the eminent men whom the University can now command for their services could sacrifice the requisite time.

"The General Universities Court was a suggestion of mine. It would require some consideration to say what are all the powers to be conferred on such a Court. But meanwhile, the following occurs to me, as suggested by experience of the want of such a function somewhere :—

"1. To stop, on complaint by any of the Universities, any violation of the ordinances by any other of them.

"2. To secure continuing uniformity throughout all the Universities in the rules for graduating in the several Faculties, by being entitled, when any University obtains a change of ordinance, to demand from the others reasons why they should not also make the change, and to direct according to their judgment thereupon.

"3. To direct, when any University finds it necessary to take legal proceedings for the protection of what is equally the right and interest of all the Universities, that all shall contribute towards the cost, rateably according to the value of their several interests.

"Incidents of a telling nature have occurred since the Universities Act to prove the advantage of such powers being vested somewhere. As to No. 3, few are aware that when the University of Edinburgh, at a time when its general fund was very low, successfully resisted a most dangerous attack at a

cost of £700, the other Universities reaped equal benefit, as the question affected them all alike, but kept their chests firmly locked up. As I took an active, and, I hope, not useless part in this case, I have always felt the conduct of the sister Universities to have been very shabby, and such as ought not to be allowed to occur again."

In this letter little is said about the powers of the General Council of the University. The importance which Sir Robert attached to increasing the interest and influence of the graduates in University affairs, was shown by his having taken that as the chief topic in his speech at the University Reform Meeting in 1857. But he always held that this could not be done by giving them direct executive power, for the obvious reasons that only the few hundred members residing in or near Edinburgh could attend the meetings; that in fact the meetings rarely numbered above sixty or seventy, even when questions of importance were discussed; and that a mere Edinburgh clique should not be allowed to legislate in the name of nearly 5000 other members who knew nothing of their proceedings.

In his evidence before the Universities Commission, he says substantially, "that from what he had seen of the working of the Council, it would be very hazardous to increase its powers except by increasing its representation in the Court; that an additional member would be an advantage, but more would be unreasonable; that the business of the Council is in the hands of a very

limited number of individuals belonging to a party which would not be found relatively numerous if the whole Council were polled; that a comparatively small number might bind the distant members to transactions which the great majority would disown; that he once tried to check proceedings by a vote in which only seventeen members took part; that a party can whip up from the local members, and carry a measure which would not be approved by the real majority of the Council. At present the function of the Council is to recommend, and this is useful. Some members of the Council thought that the Court was not ready to take up their recommendations. This is a mistake. Attention has been given to them, and they have generally been adopted. He did not think it advisable to increase the number of meetings of the Council, as if their business increased the attendance would diminish; the power of adjournment of meetings for one day might be granted, but still there is the difficulty of getting leading men to attend frequent meetings: as it is, valuable members—lawyers and doctors—cannot attend, and there is a tendency to the predominance of a clerical element and their lay supporters. He dreaded an increase of business in any department of the University. The Court has enough business now: if increased, the eminent men in it will not be able to give their time. A court of seven to nine members is very manageable. More, he suspected, would retard its business. It is right that the Court should have unlimited authority over the administra-

tion of the funds, but the Senatus should have absolute power to vote certain small sums for convenience. The University funds are published. Any man can see them. No man has criticised them. The University is flourishing in every department. Why make extensive changes?"

One important measure of reform had been left untouched by the Act of 1858. The Scottish Universities continued for ten years longer to be unrepresented in Parliament, although at the initial meeting of 1857 Lord Campbell had advocated their claims in that respect with particular warmth. In the introduction to his little book already mentioned, Sir Robert indicates the probable causes of this delay:—

"The question of Scottish University Representation in Parliament did not come before it for ten years more, but was settled favourably in 1868. By that time the main argument of its opponents—the want of a vigorous constituency—had been swept away; for Edinburgh had itself a large constituency, which, under the University Representation Act, rose at once to 3800, of whom no fewer than 3253 actually voted at the first election.

"But the ingenuity of opposition invented new arguments; and the 'old Whig' branch of Edinburgh Liberals espoused the adverse cause. A part of the tactics of the party was to speak contemptuously everywhere in society of the chance of success. On one occasion, when the proposal for University Representation was on the point of being brought before

the House of Commons, I met at dinner five Whig advocates of note, several of whom afterwards rose to the bench. After the ladies withdrew, the whole five, sitting in a row opposite, opened upon me in full cry against University Representation, at first in Parliament-House banter, but ere long in serious argument. Every now and then came the assurance that we should fail. At length the leader among them exclaimed: 'Dr C., I hope you will take it easy; but you may depend upon it that Parliament will not grant you University Representation.' I retorted with as much energy and warmth as my acquaintance with all of them entitled me to use: 'Well, it may be so, if you and other gentlemen of your party go about everywhere saying so. But if you will, like me, everywhere in society say, and show, that we ought to have it—must have it—and shall have it—you may be quite sure we shall get it.'

"I do not know if my appeal altered their tactics. But it effectually shut their mouths; and we got University Representation anyhow."

No sooner was University Representation granted, than an eminent English physician who wished to stand for the united Glasgow and Aberdeen Universities consulted Sir Robert as to his chance of success, eliciting a rather amusing reply: "It is dangerous for an Edinburgh professor to meddle at all with the representation matters of Glasgow and Aberdeen, unless he be callous to a snubbing. Glasgow and Aberdeen are *Scotorum Scotissimi*, particu-

larly Glasgow, the stronger of the two, and will scarce be content with ought but a Pict, Celt, Sax-Scot, or Scoto-Scandinavian."

There were not wanting many who looked to Sir Robert as a likely candidate for the representation of Edinburgh and St Andrews Universities, and, had he stood, there would probably have been no opposition to his return. Many of his friends, and particularly Dr John Brown, thought him eminently qualified to make a figure in Parliament; but, in truth, he had no great love of politics, and often said that, even if he had sufficient means to give up his Chair and profession, no temptation could induce him to lead a House of Commons life. At the first election in 1868, two of his most intimate and attached friends, both of whom he considered highly qualified for the office, contested the seat — Lyon Playfair and Campbell Swinton. As a Conservative, Sir Robert supported the latter with his vote; but having been appointed to carry out the duties of Vice-Chancellor for the election, he did not take any active part in the contest. In 1873, when Lyon Playfair had to appeal to his constituents for re-election, on the occasion of his appointment as Postmaster-General, and again at the subsequent general election, Sir Robert proved how little he really was the bitter politician that he was often represented to be, by successfully using his influence with his own party to prevent a contest. On the first occasion he went so far as to nominate Playfair for re-election, and made a handsome speech in his favour. The

Conservative leaders looked coldly on this generous step, and feared it would be misunderstood and misrepresented; and so indeed it was. When, in the course of time, Sir Robert felt that it was his duty to oppose Playfair — at the general election of 1880 —we find him complaining of the unfair advantage which was taken of his moderation in 1873: "How have I been repaid for this? I do not say I have been repaid in the way I shall allude to by Mr Playfair. I do not believe that he would authorise such a use to be made of his name. But how have I been repaid by his committee? In the very first manifesto they put forth, I was quoted as a supporter of Mr Playfair on the last occasion, and this was considered as a reason why he should be supported on the present occasion by Conservatives." A good lesson, truly, that generosity in politics is a dangerous and thankless virtue. In this instance Sir Robert's generosity caused some consternation among his friends, was taken unfair advantage of by his enemies, and perhaps was the main cause of their success and the defeat of his own party. In truth, the position taken up by Sir Robert in 1880 was perfectly intelligible and consistent with his previous conduct. As long as Mr Playfair was content to be the able champion of science and education in the House of Commons which he proved to be, Sir Robert was content to see him there; but when, sacrificing this position of independence, he identified himself with all the measures of the Liberal Government to which the Conservative party

were most strongly opposed, Sir Robert could not allow there was any validity in his claim to be still left undisturbed in his seat. It is indeed difficult to believe that such a claim could have been seriously set up, as it was equivalent to a demand that the University Conservatives should commit political suicide.

It so happened, too, that for once Sir Robert's political feelings were thoroughly aroused. He was strongly in favour of a vigorous foreign and colonial policy; and the Established Church, to which he was warmly attached, was seriously menaced by the direct or evasive utterances, and informal negotiations with the Dissenting party, of the Liberal leaders; and on those points the Conservative party could get no satisfactory assurances from Mr Playfair himself.

In the course of the contest, Sir Robert fully justified the belief in his capacity for parliamentary life, as far as the power of public speaking was concerned. As Vice-Chairman of the Conservative Committee, he delivered a speech which kept a large and cultivated audience in fixed attention for an hour. The argument throughout was clear and concise, and the language was so correct that he made no errors in grammar; and he never hesitated or was at a loss for a word, although he was eighty-three years of age, spoke altogether without notes, and had only lately recovered from a severe illness. But this was his first and last political speech.

The contest was no frivolous or vexatious one, as Mr Playfair saved his seat by a majority of only 74 in a vote of close upon 5000.

CHAPTER III.

UNIVERSITY.

MEDICAL REFORM—CONFLICTS BETWEEN UNIVERSITY AND CORPORATIONS—TITLE OF UNIVERSITIES TO GRANT RIGHT OF PRACTISING CONTESTED, BUT PROVED TO EXIST—DISAPPROVAL OF COMPULSORY CONJUNCT EXAMINING BOARDS AND THE ONE-PORTAL SYSTEM—MEDICAL EDUCATION OF WOMEN—ATTEMPT TO SUPPRESS CHAIR OF CLINICAL SURGERY FRUSTRATED.

ANOTHER prolonged conflict, scarcely less important to the Medical Faculty at least, than the war with the Town Council, was waged with the Medical Corporations of Scotland, and sometimes with those of the United Kingdom, on the wearisome subject of medical reform; and during the whole course of it, Sir Robert was always foremost in the fight.

He has left in MS. a summary of the contest, so admirably clear as to make a forbidding subject almost interesting; but it is too long for insertion here. He shows that from 1830, when the subject of medical reform was first broached, to about 1850, the Edinburgh Corporations worked in perfect harmony with the University. Ere long, however, the Scottish Corporations threw themselves into the arms

of their English and Irish brethren, and strove to get themselves made the sole portal for medical practice. University degrees were for the first time assumed and declared by them to be mere honours, conveying no right to practise. This bold and unpatriotic assault, which, if successful, would have reduced the far-famed School of Medicine of Edinburgh to a nonentity, although founded on mere assumption, was carried on with much bitterness and ingenuity, was brought before the University Commissioners when arranging the ordinances for regulating graduation, and finally received its *quietus* from the Privy Council in 1861. Of the last struggle, and his share in it, Sir Robert has given a clear account in the following letters:—

"To A. C. 16*th August* 1860.

"Our University Commission continues to move on slowly. It is much obstructed in every measure for arranging Medical Graduation by the Medical Corporations. Schemes for new degrees and their requirements were put before the Commissioners by myself and others. Eventually mine was adopted, but not until the three Scottish Corporations had opposed it in sundry bitter and uncompromising memorials. The scheme went before Parliament for a month, according to the Universities Act, previous to going before the Privy Council for final judgment. The Scottish Corporations and English College of Surgeons petitioned to be heard against it. This was granted, and the Commissioners were instructed to

hear all parties by counsel, and to report. This was done, and the Commissioners sent a most admirable Report to the Privy Council, tearing the whole argument of the Corporations to tatters, both on the legality and expediency of the new degrees, and as to the requirements for them, which the Corporations of course wish to make so high that nobody will subject himself to them. The Corporations have been utterly confounded—although, after all, they have merely found that a Commission of eminent and independent men have declared to be true what they had often been told before by myself and others."

Five months later Sir Robert gives a more detailed account of the case, and reports the continuance of the struggle :—

"To A. C. 17*th January* 1861.

"Since Wednesday, a great case has been going on before the Privy Council between the Medical Corporations and the Universities of Scotland, upon the value and force of our charters. In order to save us from a shameful inequality of rivalry with the Corporations, under one of the provisions of the Medical Act, the Scottish University Commissioners passed the second of two ordinances for Edinburgh, which empowered us to grant the degrees of Bachelor of Medicine and Master in Surgery, besides that of Doctor of Medicine. The Privy Council must approve. And the Privy Council first granted the Corporations a hearing before the University Commissioners, and

next a hearing before itself, in order that they might try to prove,—1. That we have no right to grant these degrees; 2. That the Commissioners cannot empower us to grant them; and 3. That it is not expedient to allow us to exercise the power, if we do possess it. The battle is going on in London, and will not end till this day. Dr Bennett is up as delegate, looking after our interests. And among those at home, I, as usual, get all the real, hard, and useful work to do, and do it unseen."

Finally, in a half-humorous letter of 26th April he records the result of the battle :—

"To A. C. 26*th April* 1861.

"Having said so much of my friends, I may next say a word or two about my enemies. But I am really very thankful to think that for some months I have lived as if there were none remaining. There has not been even "a little war" among us—nothing since January, when I had to get up a part of our University case to meet the hostility of our adversaries, the Medical Corporations, in a tremendously important contention before H.M. Privy Council about University rights and graduation. We beat them to a mummy, and I contributed my share of the pummelling, while nevertheless they could never have seen that it was my cudgel which did the business. For Dr Bennett was our representative and agent on the occasion, and all my work appeared merely in a very able speech by our counsel, Mr Selwyn, M.P. for Cam-

bridge University, who, no doubt, has got infinite credit by the learning he seemed to possess on the subject."

The work more particularly referred to by Sir Robert here, consisted in getting up information as to the rights conveyed by the medical degrees, not only in the charters of the Scottish Universities, but in those of England and the Continent; and he proved beyond doubt that the right to practise was included.

Subsequently the field of battle was transferred mainly to the Medical Council, and all the Scottish medical bodies were once more drawn together in some degree by their common dislike to the one-portal system of examination and licence, and to compulsory conjunct Boards, which became the main objects of the medical Bills. Sir Robert was always strongly opposed to these measures, believing that they would be mischievous in many ways, and that all the objects of a reasonable kind desired by their supporters could be obtained by a voluntary union of the English Corporations in their examinations, similar to that which the Scottish Corporations had carried out.

The strength of his opinions on this subject may be gathered from the following extracts from letters to the President of the Medical Council:—

"To Dr Paget. *February* 10, 1870.

"Our Medical Faculty have drawn up a strong remonstrance against the proposed conjunct Board, to

conduct the examination which will license to practise. Such a new licence would destroy the Corporate Colleges in a very short time, and the Universities would be in great danger too. All the "bodies" in Scotland take the same view. Is it possible that Parkes is right in thinking that the English incorporated bodies and English Universities will give their consent? Are they mad?—or blind?"

"To Dr Paget. *April* 6, 1873.

"I am afraid it must be allowed that there has not been, since the foundation of the General Council, a meeting so barren in results as the one now concluded. When I add that I at least ascribe its failure to so many of us having been bent on pursuing the *ignis fatuus* of conjoint Boards under Government enactment, and being unable to look with any steadiness to right or left in that pursuit—I must ask you to excuse my plain speaking.

"But you will not, I hope, misunderstand me. I have no objection to the voluntary conjunction of examining Boards—quite the reverse. But the junction must be carried through with caution, by encouragement on the part of the Council, not by compulsory enactment, and not to the imminent hazard or probable destruction of Corporations and educational establishments, now prospering and in possession of public confidence."

If there must be a State examination, Sir Robert would have confined it to the practical subjects—Clinical Medicine and Clinical Surgery.

The next formidable assault on the University was the attempt, first to induce and afterwards to compel it to undertake the medical education and graduation of women. This, if not so prolonged a contest as the two previous ones, was quite as fierce, and was embittered by the fact that a portion of the garrison took part with the enemy. The most important papers on the subject preserved by Sir Robert concern the latter part of the contest, when a Bill was introduced into Parliament in 1874, and again in 1875, by Mr Cowper-Temple, to permit the Scottish Universities to educate and graduate female medical students. In letters to Lord Advocate Gordon and others, and in a speech to the General University Council, the substance of which he wrote down immediately after its delivery, his opinions, not only of the Bill but on the general question, are recorded. We regret that we can give only a brief review of these admirably clear documents.

The Bill he treats with little mercy. In the letter to the Lord Advocate he says :—

" Its very preamble is a misrepresentation—' Whereas doubts have arisen as to the powers of the Universities of Scotland to admit women as students, and to grant degrees to women.' There are no such doubts. It has been declared by a decision of the whole Bench of the Court of Session that the admission of women to study or graduate is contrary to their charters. Nearly a year has passed since this decision ; it has not been appealed against, and never will be. But not only are there no doubts to be

removed; the Bill introduces new and most serious doubts. It proposes that grave and difficult questions, which the Legislature itself ought to settle, shall be decided by the University Courts and Senates, in which notoriously great dissensions have arisen as to these very plans and questions. . . . Suppose a University Court accepts the power offered, and issues a regulation for admitting women to medical study. Professors may resist—nay, will. Can the Court compel? Is there not a violation of private rights? Hence quarrels in the Court—quarrels in the Senate —University feuds—lawsuits for the removal of doubts. Or have the women got rights by the move? The right of compulsion to teach them, for example? It is not easy to compel a man to do that which he hates, or force him to that which he feels may kill him. But some litigious woman will certainly try it on him, backed by a male "Executive Committee," in a transport of universal love and particular malevolence. Or it may be proposed, as was suggested in the late action at law, to thrust a deputy on a recalcitrant professor. Then arise more doubts. . . . Truly a pretty kettleful of doubts—in a Bill for removing doubts which have no existence!"

In another letter in the subsequent year, he puts the matter very tersely thus:—

"First, the preamble is false. . . . Secondly, the very procedure of a Permissive Bill is an abominable feature in it. It is just another specimen of the Permissive Liquor Bill principle. . . . The newer device is 'to permit you' (C——, H——, M——, and

others) 'to compel me' to do that which my nature and reason detest, and which my *physique* declares it cannot sustain. In short, the Permissive Bill will make a very pandemonium of our Senatus. Thirdly, the Bill devolves upon University Courts what Parliament is in duty bound to do itself,—to settle to what extent women are to practise and be taught medicine, and by what means they are to be taught—whether by burdening existing schools, or by separate teachers with separate appliances. The Bill imposes all this duty on Universities without providing for the extra cost, which, with separate instruction for women, cannot be less than £100,000 capital, and several thousand pounds a-year besides. Fourthly, it gives unlimited power to the University Courts to alter and overturn as they please in favour of women the medical ordinances which cannot be touched in favour of men, except with concurrence of several other branches of University government, and, above all, of the Queen in Council.

"A more miserable and bungling contrivance than this Bill—twelve months, too, after its defects were pointed out—I can scarce imagine."

The Bill—which at first, from ignorance of the subject, received considerable support in Parliament—could not stand before such vigorous assaults as these. As its true character came to be known, one after another of its supporters in Parliament fell away. It gradually earned the almost universal contempt which it merited. The dockets put by Sir Robert on letters from parliamentary correspondents describe

its fate thus: From Sir William Stirling-Maxwell—"The Bill ought not to pass." From Sir Wyndham Anstruther — "Women's Bill totters." From Sir Graham Montgomery—"Bill has tumbled over!"

To an influential correspondent who told Sir Robert that the Government were inclined to nurse the Bill, and that it might be unwise to oppose it, lest the application for a grant in aid of the new University buildings might be prejudiced, he replied with the bold straightforwardness of his nature: "In politics, as in other matters, my rule has been that honesty is the best policy. Were I to yield to such a consideration, and sacrifice the safety and prosperity of our medical school in order to secure a building grant, I should be selling my birthright for a mess of pottage."

In his speech to the University Council, Sir Robert treats of the general question. In reply to the speeches in favour of admitting women to study medicine in the University, he asserts it may be good rhetoric, but is bad logic, to maintain that because five ladies have distinguished themselves as students of chemistry and physiology, therefore the whole system and practice of the medical school should be overturned for their sakes, whatever may be the consequences to be apprehended: he denies that every branch of medical education may be fitly taught to male and female students conjunctly, and pronounces it to be impossible in his own class. He demands that the feelings of the then students should be consulted. "Last year an overwhelming majority of

them presented a memorial to the Court against the admission of females among them into their classes. But more than this,—What say the parents and guardians of our students? I can tell you that some of them have written to myself and my colleagues remonstrating against the measure." He then demands—

"For what are we asked to make this rash experiment? The proposal is founded on a series of mistakes. Firstly, there is no evidence of any adequate demand among females to be educated in medicine. When I opposed some time ago the first movement to admit one lady, I maintained that to make a new University law, in violation of constant usage, to accommodate one applicant, was an absurdity; but that if fifty, or even twenty, were to apply, one could see good reason for weighing the application with attention. Now I make no doubt that this challenge was made known in the quarter most concerned with it, and that all England and Scotland were ransacked for female medical students. The result has been five female 'Cives' last November, and a promise for next session of two!

"Secondly, there is no evidence of any adequate demand for lady-doctors when they are made. This Council has been told the demand was such —public opinion was so strong on the subject—as to sweep University opposition and all prejudice before it. I declare, however, that I cannot find this public opinion. I see, indeed, an occasional article on this side of the question in a newspaper; but I can esti-

mate such notices at their actual value. We have been told that female society is overwhelmingly in favour of having female physicians; but when I appeal to society itself, I receive a very different impression. I have never introduced this subject in a mixed company, but many a time it has been introduced upon me in such circles; and I can honestly say that I never met but with a hostile, and generally a bitterly hostile, opinion to the idea of lady-physicians, with one notable exception. An intelligent and amiable lady expressed to me her surprise that I should be opposed to the movement; but when I begged to put to her a single question—'When the lady-doctors are made, will you employ one in your own family?' she promptly replied, 'No, certainly not!' But I am not confined to such evidence. There is a general fact, which may serve as a further test of public feeling. Everybody knows one branch of the medical profession easy of access, and which, of all its branches, females are peculiarly fitted to practise. In my youth they did practise it most extensively; in all ranks they were the favourite practitioners. A supply was kept up by instruction on the part of eminent obstetrical teachers, and there has been no want of well-trained female practitioners in this line. I am sure I have always wished them success. If ladies would espouse this branch of medical practice, their success would be a great blessing to the public. But what has been the progress of public opinion on that head? Simply that this branch of practice in all ranks has gradually passed into male hands, and now every

ploughman's wife expects to be attended by a male obstetrician!"

As to the alleged improvement in the conduct of the male students from the humanising influence of the five ladies, Sir Robert thought it a rather wonderful statement. He says that since he first became a Professor, he had never known anything but good conduct in his own class. "Some of my colleagues allow noise in their class-rooms, which I think exceedingly wrong. I never do; I am never troubled with it: as to other faults in the class-room, they are equally unknown to me. As for the conduct of our students outside the class-rooms, I have seen no evidence that the five lady-students have effected any great improvement. On the contrary, do we not all know that, during last winter, we have had as sanguinary a snowball-riot as we ever had in former years?"

In another letter Sir Robert states it to be his deliberate opinion that "the Professors of a Medical Faculty, if they do the duty they owe to their male students and their classes, cannot teach a separate class of women;" and he shows that all the Professors who had tried it broke down under the strain. Finally, he demands that a Commission should be appointed to inquire into the whole subject before an Act so serious in its consequences should be allowed to pass; and he offers to prove before it that female practitioners are not wanted in this country—that such an order of practitioners would be injurious to medicine as a scientific profession—and that, in the

nature of things, the constitution of the female mind and frame is, with rare exceptions, quite unsuited to the exigencies of medical and surgical practice.

It must be owned that Sir Robert's opinions on this subject in 1874-75 have been largely verified by subsequent experience. Who that knows anything of the increased work thrown upon the medical Professors of our University since that period can believe for a moment that they could stand the strain of educating women also in separate classes? And what has been the result of the alleged overwhelming want of female practitioners? How few women have availed themselves of the education in London and licence to practise now open to them! Even in our largest towns one or two lady-doctors appear amply to satisfy the demand, and in some of the largest not one is to be found. Well might Sir Robert maintain that, notwithstanding the prodigious fuss got up by a pseudo-liberal agitation, "there was no adequate demand for female practitioners in this country."

As usual when involved in contentions, Sir Robert went thoroughly to the root of the matter, and investigated all the ancient records he could hear of regarding University legislation about women. One statute he was particularly fond of quoting when in a malicious humour, and here it is as he preserved it:—

EXCERPTA E STATUTIS UNIVERSITATIS BONONIENSIS,
Anno 1337.

"Et quia mulier est Caput Peccati, Arma Diaboli, Expulsio Paradisi, et Corruptio Legis Antiquæ, et propterea omnis

ejus Conversatio sit diligentius evitanda, interdicimus et inhibemus expresse ne aliquis mulieres aliquas, quantumcunque honestas, in dicto Collegio modo aliquo introduceret. Et si secus fecerit, graviter a Recto puniatur."

[*Quod Felix Faustumque Sit.*]

For all this, Sir Robert was not adverse to the medical education of women for certain purposes, such as the treatment of Mohammedan women in the East; but he held that for this purpose, and still more for the education of women to practise in this country, it was wrong to upset the regulations and risk the prosperity of existing institutions; and that, if there was the enormous demand for female practitioners that was alleged, it would be easy for the supporters of the movement to raise sufficient funds among themselves to establish a medical school for women.

Except in the minutes of the Senatus, there is little record of the share which Sir Robert took in its ordinary business. The only affair of importance of which he has left an account was an extraordinary attempt, made in 1869, to suppress the chair of Clinical Surgery.

"A motion was made in the Medical Faculty in the following complex form: 'That every physician and surgeon in the Infirmary should teach Clinical Medicine or Clinical Surgery; that the certificate of all, whether Professors or not, should qualify for graduation; and that all express Clinical Chairs, Medical or Surgical, should be abolished.' The apparent liberality of this motion was easily shown to be wanting

in substance. I pointed out that this so-called motion was really three independent motions, on which totally different opinions might be come to: that I could assent entirely to the first clause; that I could consent also to the second, upon condition that the very liberal proposal to make every clinical certificate, whether professorial or non-professorial, qualify for graduation, should be extended to all other Chairs—since that had always been my doctrine, if a strictly University education for a University degree was to be departed from at all; that the last clause of the motion was untrue, inasmuch as there is no 'express' Chair of Clinical Medicine; that the real object of the motion was the suppression of the Chair of Clinical Surgery, and therefore that I should clear away all the cobwebs from the proposition, by moving, as an amendment, 'That the Chair of Clinical Surgery ought not to be abolished.' This amendment was carried by a majority of 6 to 3. The same game has been tried, and with the same ill success, in the College of Surgeons. It was afterwards carried, however, in the College, that the Home Secretary, who is substantially patron of the Crown Chairs, should be entreated to couch the commission of the new Professor of Clinical Surgery in such terms as would empower any other member of the Medical Faculty to lecture on that subject on the same footing on which all who choose may lecture on Clinical Medicine. The principal reasons given were,—1st, The establishment of a vigorous rivalry in the University; and 2d, That the original commission re-

served the right of lecturing on Clinical Surgery to the Professor of Anatomy and Surgery.

"By an odd concatenation of events, the memorial of the College was sent by the Home Secretary to me for information! The Secretary thus became accurately acquainted with these facts among others: 1st, That there was this important difference between the teaching of Clinical Surgery and Clinical Medicine,—that there was always a sufficient number of physicians in the faculty willing and able to form a competent body of lecturers on Clinical Medicine, while there was only one available surgeon—the one who signed the memorial of the College, and the only Professor who could benefit by the change prayed for. 2d, That the University had always been strongly opposed to any rivalry within walls; that a much more suitable rivalry was the existing admission of Edinburgh extra-academic lecturers on Clinical Surgery to University privileges, of which no notice was taken in the College memorial; and that the proposal of the College would virtually introduce an unfair rivalry, inasmuch as the Professor of Surgery could compete with the Professor of Clinical Surgery, while there could be no reciprocal competition with him as Professor of Systematic Surgery. 3d, That the clause in the commission reserving the right to lecture on Clinical Surgery to the 'Professor of Anatomy and Surgery' was no longer operative, since there was no longer such a professorship, and should therefore be struck out.

"The answer to my information was the appoint-

ment of Lister, and the issue of a commission which contains no qualification whatever. It is now for —— and —— to justify their policy by bringing it manfully before the Senatus or the General University Council; but will they now? No! braying in a mortar would be a pleasure compared with the reception they would get."

CHAPTER IV.

UNIVERSITY.

CHAIRMAN OF FINANCE COMMITTEE OF SENATUS — GEOLOGY CHAIR —UNIVERSITY ENDOWMENT ASSOCIATION—GOODSIR FELLOWSHIP —CONSULTED IN CROWN PATRONAGE—THE CHAIR OF MUSIC— RELATIONS WITH THE STUDENTS—BURKE RIOT—SNOWBALL-RIOT — PROPOSED COLLEGE HALL — ADDRESS TO STUDENTS ON NEW MEDICAL AND UNIVERSITY ACTS—UNIVERSITY ANECDOTES.

ALWAYS eager to promote the interests of his University, Sir Robert cheerfully accepted every duty that his colleagues wished him to undertake. Of this we have given instances in matters affecting the government, and what may be called the internal and external politics, of the University. But in other duties of a less public character, his services were also frequently called into requisition, and some of these it is the purpose of this chapter to describe.

Perhaps the most important and laborious of these voluntary undertakings was the attention which he paid to the finances of the University. At an early period, as Dean of the Medical Faculty, he appears to have had a little experience in keeping accounts, and

to have acquired some confidence in his powers as an accountant.

"*Feb.* 1861.—I surely must have had a turn for accounts. When I was Dean of the Medical Faculty, I kept a very complex reckoning indeed, and always squared the two sides of my book to the thirteenth part of a penny, which unusual fraction was an indispensable element of the division of ten guineas among thirteen examiners; and, in fact, the two succeeding deans, Syme and Traill, could make nothing of their books, even with the aid of Mr Secretary Gordon—and in Traill's case after a whole night of constant endeavour—till they had my help also. I really think, then, that I must have been a born accountant; and yet I have never been able to balance my own proper accounts at the end of any one year. To be sure, my error is on the comfortable side; I have always more in my possession than my books indicate; but my character for exactitude loses all the same."

But his financial capacity was afterwards put to a severer test. For many years he acted as chairman of the Finance Committee of the Senatus; and Professor Turner, one of the Committee, has informed us that, "under his prudent advice, the funds of the University were administered with care and judgment. He always impressed on his colleagues the importance of so proportioning the expenditure to the income, that a reserve fund should gradually be accumulated, as the portion of the University income not settled by deed, statute, or ordinance, was so largely derived

from graduation and matriculation fees, as to be necessarily very fluctuating in amount."

Another branch of University business in which Sir Robert took much interest, was the establishment of new Chairs, Fellowships, and Scholarships. Without his exertions, the Chair of Geology, in particular, might not have been founded so early as it was.

Journal. "21*st August* 1870.—Three years ago a vigorous attempt was made to obtain the foundation by the Crown of a Chair of Geology. Sir Roderick Murchison strongly urged it on the Government, on the ground of the immense advantages of Edinburgh as a geological school, from its magnificent museum, and unrivalled opportunities of practical field instruction. But Sir Roderick's right-hand man, Palmerston, was dead, and his successors were too deeply stained with the irreverence for science which has long, unfortunately, characterised the British Government—and the application was refused. It seems very probable, however, that we shall be successful now; for, receiving information that Dr Allman was positively to resign the Chair of Natural History, I wrote to Playfair, Keith Johnston, and Geikie, begging each of them to write to Sir Roderick, and to hint to him that if, as many of his friends were in the habit of saying, he intended to bequeath a sum of money for founding a Geological Chair, it was a great object, as there was now a rare opportunity, to establish it at once. Each of my friends received for answer that he was

ready to present the contemplated sum now—viz., £6000, in the expectation that Government would contribute an equivalent annual salary."

The formation of an Association for the better endowment of the University was one of the results of the fresh interest taken in its affairs after the Act of 1858. As a member of the acting committee, Sir Robert took his full share in the various measures adopted to carry out the objects of the Association. In 1867 he was appointed chairman of a Committee for founding a Scholarship in the University in memory of the distinguished anatomist Goodsir; but the majority of the Committee having resolved to open the Scholarship to certain licentiates of the Edinburgh Corporations, as well as to University graduates, he regarded this as not only contrary to the intention of the meeting which had started the scheme, but as certain to wreck it entirely: he therefore withdrew from the Committee. The result of this injudicious measure on the part of the Committee, was to destroy all interest in the Scholarship beyond a small circle in Edinburgh; and the dockets of the bundles of papers which Sir Robert preserved, record the fate of the scheme: "1. How the Goodsir Fellowship was botched." "2. The Goodsir Fellowship blown up."[1]

One of the strongest proofs of the confidence placed in Sir Robert's judgment and integrity was, that

[1] The scheme resulted in raising a sum sufficient to yield a prize of £60 every three years.

during the later years of his University life he was constantly consulted in the Crown appointments to Chairs, not only in his own but in the other Scottish Universities.

Journal. "*9th August* 1869.—I have had proof this day that Medicine need not belong to any political party. In much more violent times than the present I refused, during the canvass for the Chair of Medical Jurisprudence, and afterwards for my present one, to say what were my sentiments in State politics, assuring my questioners that political creed had no natural connection with professorial elections. In the revolution of time, as if my neutrality were known, I suddenly find myself consulted as to Crown appointments under a Whig or Radical Government. Not long ago I was asked from headquarters to advise the Home Secretary how to fill up the Obstetrical Chair in the University of Aberdeen; and now, having proffered my advice while in London as to filling up our Chair of Clinical Surgery, I am asked to say which of three candidates is best, and which second best, for the Surgical Chair of Glasgow, in the event of Lister being appointed to that of Clinical Surgery here; and presently I am told that the Home Secretary agrees with me in his opinion about both elections. This is flattering; but, on the whole, I sincerely wish that Government patrons would let me alone, unless when our own dear old woman the University is concerned at home here."

Although Sir Robert was also frequently consulted by individual patrons in other than Crown appointments, and thus altogether exercised considerable influence in the filling up of vacant Chairs, he had no desire to be himself a patron; and indeed at the first meeting of the University Court, when the discussion took place as to the appointment of their three representatives in the Court of Curators, he announced that he could not consent to be a patron. Nevertheless, as the Professors were the original patrons of the Chair of Music, founded in 1839, he was obliged to exercise the right of patronage in that instance on three occasions. In 1865, when it became vacant by the death of Professor Donaldson, he had again to act as patron, in his capacity of member of the University Court, the patronage having been transferred to that body in 1858. It so happened that Sir Robert had always been forced to take a peculiar interest in this professorship, and he was often asked to draw up a history of it, which he did in 1866. We give some of the most important passages from this MS. work:—

"The first appointment to the Chair of Music, founded in 1839, was claimed by General Reid's executors, who gave it to Mr John Thomson, son of an eminent clergyman of Edinburgh—an accomplished musician, and a musical composer of much promise. But he soon fell into irretrievable bad health, and died in the second year of his professor-

ship—in June 1841—without having been able to deliver a course of lectures.

"The appointment then fell into the hands of the Principal and Professors. On this occasion a strong effort was made in favour of Mr John Donaldson, who had been in his youth a musical teacher of note in Glasgow, but who, without quite deserting his first favourite pursuit, had for many years applied himself to the profession of advocate at the Scottish Bar. The powerful influence of his legal friends rendered him a formidable candidate; but it could not overcome the celebrity of Mr Henry R. Bishop, who was accordingly elected, by a small majority, in January 1842.

"About the same time the Senatus took into consideration the mode of applying the annual revenue derived from the Reid Fund to the best advantage of the University and the Chair of Music. The salary fixed upon by the testator as the minimum for the professorship — £300 — appeared the most suitable in a University in which few of the previous professorships had an endowment amounting to even two-thirds of that sum, and where it had been a constant principle that salaries should not be so high as to encourage indolence or sinecures. Great difficulty was felt in assigning what was needful for establishing the Chair in other respects. When Mr Bishop took his place in the Senatus, he gave no indication of his wants; and when asked what he would require, he limited his demands to 'Fifty pounds for a monochord, and a black-board with ruled staves.'

In February after his appointment, Mr Bishop gave and conducted the Reid Concert with great success, and in November delivered an able introductory address; but he failed to draw a class, probably because he allowed an interval of two months to elapse between his first and second lecture. At the appointed time he repeated the concert; but from that time Edinburgh saw him no more. In answer to remonstrances from the Senatus, he expressed his intention to recommence his lectures in the following November. November arrived, but no Professor. He ascribed his failure in a vague way to ill health; and having been informed that the Senatus were determined to prevent the Chair from being made a sinecure, Professor (now Sir Henry) Bishop resigned in November 1843. In an obituary notice of this eminent musician in a London weekly journal, his resignation was ascribed to the resistance he encountered from the Senatus in carrying out his plans; but in point of fact there never was even an approach on his part to an explanation of his wishes concerning the Chair, and there can be little doubt that he resigned because he saw that he could not make it the sinecure which he expected to find it. As for his alleged dissatisfaction with the Senatus, his subsequent conduct belied that supposition, for Sir Henry became again a candidate in 1845.

"At the ensuing election Mr Donaldson was a candidate for the third time; but Mr Henry H. Pearson, a young Oxonian, presented such high qualifications that he was elected in June 1844. In due time

he intimated the opening of his class duties in November. The appointed time arrived, but neither Professor nor apology! Remonstrance only drew from him a statement that his health was such as to forbid his passing the winter in Scotland. The Senatus considered his conduct so unsatisfactory that they proceeded to take further measures. But these were anticipated by the resignation of Professor Pearson.

"It will not appear surprising that the Senatus, wearied with such frequent contests, and disheartened by the results, appointed Mr Donaldson on his fourth appearance as a candidate in March 1845. Having imbibed very high notions of his powers under the testament of General Reid, Professor Donaldson took no pains to instruct the Senatus in his views for the establishment of the Chair, or his probable demands for the purpose on the fund. He ordered costly apparatus, without sanction or grants of money from the Senatus, and without getting estimates from the tradesmen. Subsequently he made a demand for payment of his obligations to account, beginning with £500. In short, he acted as if he considered the Reid Fund to be at his disposal. At last, after many evasions, he was provoked to own that, in his belief, the whole Reid Fund, amounting at that time to £62,000, would scarcely suffice to carry out his complete ideas for the establishment of the Chair.

"Such notions and such conduct, when tried by the views of Sir Henry Bishop, who was contented

with a monochord and black-board, were very startling, and Professor Donaldson rapidly alienated every member of the Senatus, the very first to fall away being the friends who had strenuously fought his cause at the elections. The result was an action-at-law to settle the points in dispute between the Professor and the Senatus as trustees of the fund. The issue of the action was to raise the Professor's salary to £420, and to fix the cost of the annual concert at £300. The requirements for establishing the Chair were not so easily settled. A commissioner was appointed to inquire and report on the matter, but he could get no available evidence in this country, and was equally unsuccessful in Germany. And no wonder; for I am informed that in that most musical of lands, the establishment of a University Professor of Music literally consists of a monochord and black-board. Nevertheless the Court of Session awarded no less than £8000 for a class-room, £2000 for an organ, and £300 a-year for assistants and apparatus. £40,000 of capital were thus set aside for purposes connected with the Chair of Music.

"Professor Donaldson proceeded at once to deliver a course of lectures without fees, and succeeded at first, but failed at no distant date, and ceased to lecture. All the while he was imperceptibly sinking into irretrievable ill health. Nevertheless, roused by remonstrances from the Senatus and University Court, and refraining from making these bodies fully aware of the extent of his feebleness, he courageously resumed his lectures for two winters, and with a

measure of success scarcely to be looked for from his broken-down condition. In the subsequent autumn of 1865 he died."

In concluding his account, Sir Robert observes that "many approved judges have maintained from first to last, that if General Reid had known better how to encourage the cultivation of music in his native land, he would have founded an Academy of Music, not a University Chair, and that the theory of music will never be made a successful subject of University instruction by any possible Professor. That is not my opinion, however; nor ought an unfavourable augury to be drawn from the past history of the Chair, for all trials hitherto have been made in unpropitious circumstances."

In the second part of this little history, Sir Robert gives a full account of proceedings with regard to the Reid Concert. He shows that it was quite successfully managed at first, when the expenses were defrayed partly from the Reid Fund, partly by selling tickets; but that in the hands of Professor Donaldson, who refused to lay any charge on the public, the concert was a miserable failure, and disgusted everybody, including Donaldson himself, who, obstinately adhering to his view that the expense must be entirely defrayed by University funds, at last actually proposed that all parties should agree in getting the concert abolished by Act of Parliament. Sir Robert also shows that the legal opinions obtained to settle doubtful points agreed that neither the Senatus, students, nor patrons could claim free admission to

the concert; and that the most eminent counsel consulted held that if the trustees and Professor were agreed as to the expediency of selling tickets, no question could be raised as to their right to do so. Finally, Sir Robert expresses his entire satisfaction with the first concert given by Sir Herbert Oakeley, who adopted a mode of management midway between that of the earlier Professor and Mr Donaldson.

Sir Robert has left the following account of a singular riot which arose from a misunderstanding between Professor Donaldson and the students:—

"To A. C. 2*d March* 1862.

"You will see that we have been having our annual student-row. This time there was no snow to initiate one, but in the nick of time our unharmonious Professor of Music came to the relief of our monotony by curtailing the usual student-tickets for the Reid Concert from 400 to 150, and distributing them the day before the concert in a small room with a long narrow passage, and no separate exit. Thus arose row the first, in a fearful scramble of 400 lads for 150 tickets. Infuriated at Mr Donaldson, and imagining they had the right of admission (which is a mistake), they marched in a body to the Music Hall, battered in the door, and took possession of a number of seats in the body of the hall, while some hundred were got into a kind of order by Dr Bennett and other Professors behind the orchestra. Once in, they behaved like gentlemen.

"Act II.—But, not content with their victory, they

marched in a body to Donaldson's residence, near Davidson's Mains, a distance of three miles, which they reached between one and two in the morning; and rousing the little man from his bed, though I fear they knew he was an invalid, succeeded in gaining admission for a deputation of two to reason with him as to the enormity of his offences towards them, and the desirableness of some explanation. This I think their worst outrage.

"Act III., however, passed by quietly enough, for luckily the police, who let them go out of the town unmolested, were not guilty of the usual folly of assailing them when all chance of mischief was over. And now comes the *dénouement* of the piece. One fellow has been fined for breaking in the Music Hall door; the rioters are in honour bound to make up the damage of £22 done to the hall. The two delegates are to be taken in hand by the sheriff of the county; and I suppose, when the civil power is done with them, the University power will be invited to add its thunders in the way of punishment."

In this affair it is impossible to withhold admiration from the plucky little Professor, with his insignificant appearance and attenuated frame, as he sat up in bed at two in the morning, arguing the point with the students, and offering, as we have been informed, to show them there and then the legal documents bearing on the case! Whether this offer, or the skilful way in which he pointed out the serious nature of the offence the students had committed, and the danger

of punishment which they had incurred, had most effect, we know not, but the deputation withdrew in a much humbler spirit than that in which they demanded the interview.

In the following notice of the death of Donaldson, Sir Robert brings a powerful testimony to the completeness of the teaching apparatus collected by the Professor.

"To A. C. 17*th August* 1865.

"Professor Donaldson, after getting his music-hall, organ, and other means of teaching, at a cost of £12,000 outlay of capital and £300 a-year for class-expenses, found himself in an irretrievable state of infirm health, which incapacitated him from all zealous and continuous exertion. For five years he lingered on thus disappointed, and now is dead, and so the University loses the advantage of a very remarkable and costly experiment. Hullah, the conductor of our Philharmonic concerts, saw the whole establishment minutely, and had its capabilities explained by Professor Donaldson himself. He was exceedingly struck with what he thus learned, and said to me he would have to tell his friends in London that there was no such establishment for teaching the science of music anywhere else in the world—none that even approached it.

"I must not commit myself to an opinion as to Donaldson's successor, because I am one of the electors who have to fill up the vacancy, and it is very likely that my brethren of the body will trust somewhat to

my very eminent reputation as a musical man for good advice. Let me observe that I know not a stronger proof of the low state of musical science in Edinburgh than the prevalent notion that I am conversant with music, and that I am a musical authority."

As several excellent candidates came forward for the vacancy, the contest which ensued was close and hard-fought. Indeed it appears to have caused even more excitement than contests for University Chairs usually do in Edinburgh circles. Sir Robert supported the late Mr John Hullah, who, however, was defeated by the present esteemed holder of the office. Some particular occurrences in the course of the struggle, of the nature of which we are ignorant, drew forth from Dr John Brown, who had supported the successful candidate, the following characteristic letter :—

2*d November* 1865.

My dear Dr Christison,—Before going to that restless bed you predicted for me, I must try to tell you how much I feel about the way you have carried yourself in all this Music Chair business,—your perfect justness, your—let me call it—your sweetness of nature, and the way in which you have conducted your part in it from beginning to end. I trust I shall never forget it; and Mr Oakeley's friends, and he himself, are already aware of how much he and they owe to you, and I doubt not he will not be slack in expressing this to yourself. To myself, your goodness and perfect fairness will always remain in my mind as one of the best things I know of human nature.—Ever yours truly,

J. Brown.

We now pass on to say something of Sir Robert's relations with the students. These were always of the closest and most friendly character. In the class-room he insisted, indeed, on the strictest discipline; but as the mass of students do not really approve of noisy manifestations in the classes—although they are slow to exercise any check on the vagaries of the few who err in this respect—the discipline which Sir Robert maintained only ensured their esteem; while his tolerance for their occasional ebullitions of youthful indiscretion outside the class-room, and the interest he showed in their collective or individual welfare, drew towards him an attachment of no ordinary kind. His success in maintaining order he was wont to attribute very much to the instant checking of any noise that might break out in the class; and he severely blamed those Professors who, gratified by applause from the students, found themselves obliged to tolerate other noisy interruptions, and in some instances finally lost all hold of their classes.

In his address to the medical graduates of 1866, which consists of a most interesting history of the medical school of the University, Sir Robert vindicates the Edinburgh students from the charge of insubordination, and gives a valuable account of two of the most serious student disturbances which occurred in his day:—

"To the Scottish system of extra-mural University life, the objection has been made of a laxity of discipline favourable to immorality and insubordination. No proof, however, has ever been brought forward

that under University rule in Scotland either the greater or lesser vices of students are worse or more frequent than those of the Universities of England. As to Scottish insubordination, I must give our students the benefit of my testimony, that during the long time I have taught them, I have not witnessed a single act of insubordination in my own class, and that none has ever occurred in another, which did not arise from mismanagement on the part of the Professor. Of more serious acts of general insubordination, approaching in character to riot, there have been in my time only two, which have given your predecessors a name, and which rumour has greatly exaggerated. The first, now almost forgotten, happened in January 1829, when the body of the arch-murderer, Burke, was brought to the anatomical rooms after execution to be dissected, according to his sentence. Two thousand students took it into their heads that they should like to see it; but the college bailie—the name of the civil magistrate who, under our old constitution, had charge of the police of the University—took it into his head to resist this wish. Presently he found it necessary to back his resistance by a force of police. A conflict, of course, at once arose. The police, at last, were hemmed in at the Anatomy corner, and matters began to look uncommonly serious. No aid was asked from the Professors: even Dr Monro was not communicated with; but a Professor [1] who chanced to be in the quadrangle volunteered the simple advice to put down the disturbance

[1] This was Professor Christison himself.

by granting the students their wish. The irate magistrate at first treated his adviser as a ringleader, and even threatened to commit him on the spot. But better thoughts prevailed. The students were allowed to file past the dead criminal that afternoon; and the privilege was extended during the next two days to 40,000 of the populace, who, like the students, behaved with the utmost decorum. This was a simple case of something like a riot arising from nothing else than blundering punctilio and dogged mismanagement.

"The other incident of a like kind was much more alarming. One morning in 1838 a knot of street boys at the College gate snowballed the assembling students, who repaid the compliment with interest. Bigger than boys then joined the fray, which led to a change of weapons. 'Jam fasces et saxa volant.' The conflict soon reached such dimensions as to call for the interposition of the police. But the police interposed on one side only—mistaking their business, which is that of peacemaker, not of partisan. By-and-by the plan they fell upon was to storm the College quadrangle, in which they signally failed.

"One would suppose that, at this crisis at least, the civic authorities might have bethought them of calling in the aid of the Professors, but in place of that they sought the aid of the mob. With their support the quadrangle was attacked again, and again the assailants were repulsed. Night put an end to the combat, which was renewed next morning with

increased animosity. Severe injuries were now sustained on both sides. The conflict continued till night again approached; but, except that a good many bruises were inflicted and some prisoners taken, no impression was made on the defenders of the quadrangle. A bright idea now took possession of the magistrates in command. A wing of the 79th Highlanders was summoned from the Castle, and the quadrangle was carried by four companies of foot, with forty rounds of ball-cartridge in their pouches. The students, retreating to the terraces, cordially cheered the military, but continued in no mood to yield to the police. A Professor[1] now got leave from the magistrates to address them; and a few words directed to their common-sense, induced them all to retire to their homes.

"The authorities of the city made so much of this disturbance, as to try five chief offenders for riot. But lawyers generally laughed at this device. By the witty counsel for the defence—Mr Robertson, afterwards on the Bench—the trial was turned into a farce; and after four days' patient hearing, the Judge discharged the prisoners. Nevertheless, at a distance, the snow tournament and police scuffle were long looked at as a formidable riot; and Louis Philippe's Ministers, it was positively alleged, made inquiry whether the row was not part of a general revolutionary insurrection among the University students of Europe. The whole affair was really nothing else than the natural effervescence of youth, mismanaged

[1] This was again Professor Christison.

by blundering functionaries and an ill-trained constabulary.

"I have given a summary of these incidents, because the facts were published, never correctly, and always exaggerated."

Sir Robert, in the course of his long career, attended very many students in illness, particularly during the epidemics of fever which from time to time ravaged this city. All traces of these kind actions would have been lost, were it not that he has mentioned, among the proofs of the ease with which the contagion of typhus fever may be combated by attention to ventilation and other precautions, that he himself had attended before 1850 at least one hundred students and young doctors suffering from typhus fever in their lodgings, without the disease spreading in a single instance to the attendants or others in the houses. These services were, of course, gratuitous, and he used to relate with glee how he rebuked a brother Professor who was not so scrupulous. They had been attending a sick student, sometimes together, sometimes separately; and one day, when Sir Robert came alone, to his astonishment the student offered a fee. He at once declined. "But," said the student, "Professor —— accepted one." "Did he? Very well. We are coming together to-morrow; offer me a fee in his presence." The student did so, and Sir Robert said, in a marked manner—"Oh no, sir; a Professor *never* takes a fee from a student!"

The absence of collegiate life has always stood in the way of united action by the Edinburgh students for

their common good. It is only in recent times that, by the energy of some individuals among themselves, aided by the co-operation of the Professors, certain deficiencies of University life have been supplied. Sir Robert took a warm interest in all these improvements, particularly in the development of a taste for athletic exercises among the students, which was greatly furthered by the establishment of a gymnasium, imperfect though it be, and the acquisition of a cricket-field. It was always a subject of regret with him that so few students took advantage of these important aids to maintaining health in a studious life, and, in particular, that the arts students were strangely insensible to these privileges, as indeed they are to the present day.

In 1862-63, when an effort was made to establish a College Hall, Sir Robert drew up a plan for the purpose, which he submitted to Mr Gladstone, at that time Rector of the University, who sent the following reply :—

HAWARDEN, *Jan.* 3, 1863.

I thank you for your very considerate and very interesting letter. Passing over the immediate business of your meeting, on which I need not enter, I do indeed feel that the plan of the projected Hall is a very important one.

Dr Guthrie once told me he had a plan for registered and approved lodging-houses, or keepers of houses with lodgings in them, which seemed to me rather simple and feasible. I should have thought it might deserve consideration whether this plan might be worthy of adoption, either—(1) as a first step in the direction of a system of Halls; or (2) in conjunction with it.

But, in truth, it would be hazardous on my part to enter on so very considerable a question, further than to say that the heads of a plan which you give me appear to me at first sight prudently conceived, and that I shall watch with much interest their further development.—Believe me, very faithfully yours,

W. E. GLADSTONE.

But on this, as on other occasions, no substantial progress was made, and the old system of voluntary residence still continues.

Sir Robert delivered an address to the United Debating Societies of the University in 1868, his description of which we have given in another chapter.

We conclude this part of our subject with Sir Robert's account of a lecture he delivered to the whole body of students in 1861, upon the new system of graduation under the Act of 1858.

"To A. C. *26th April* 1861.

"I consented to deliver on the 13th a lecture to the whole medical students on the new system of graduation, its relations to the new Medical Act and the new Universities Act, and the future legal rights of graduates. The necessary preparation proved to be a work of great labour, for I had to put on a new character, that of an antiquarian and medieval scholar, and to rummage among old chronicles, about the year 1200, for the origin and early history of those Continental Universities on which, as models, all ours in Scotland are expressly declared to be founded. My patience was rewarded in many ways, and, among others, by the fact of its being a two-

hours' lecture—a dangerous duration—which, nevertheless, six hundred hearers listened to with marked attention to the last."

"16*th June* 1861.

"In the course of my inquiries I got deep into the origin of Universities, their degrees, and graduates' rights, as originating in the middle ages. As the whole matter appeared to me very clear and interesting when fully mastered, I have published a little book giving a pretty full account of my researches. My inquiries do not leave the Medical Corporations so much as a toe to stand on in their late opposition to the Universities."

This chapter ends with some miscellaneous anecdotes or observations connected with the University, collected from Sir Robert's letters and journals.

Recruiting for the Turkish Contingent.

'To D. C. 27*th April* 1855.

"There has been a whipping-in of medical officers for the Turkish contingent. Professor —— made his class-room a crimp-shop for the Medical Inspector of the contingent. The Professor made a harangue and the Inspector an appeal, which, acting like whisky on the lads, made them tumble down the benches, till thirty-two appended their names to the enlistment roll. Some repented next day, and were not forthcoming; but —— tells me he has secured four surgeons (?) and twenty dressers. If they all be of the calibre of one whom I know, I shall be sorry for the

Turks. This gentleman, who looks twenty-eight, has got the rank of full surgeon to the contingent by the following ruse. "Ah!" says Dr ——, after having set down one or two for assistantships only, "*you* look as if you had not passed yesterday." "Certainly not," was the reply. "Then you shall be surgeon, with twenty-five shillings a-day." The real fact was that he had passed the day before yesterday!

Different men are differently constituted. For my part, I could not sanction sending out such a crop of ignorant lads to deal with human life; but if prevailed on, by the goodness of the cause, to address my class in its favour, I should certainly have insisted on the lads taking an evening to consider it, and to get their friends' advice and sanction. I should not feel comfortable if accessory to sending a considerable proportion of these young fellows to destruction, with a very dubious prospective good for the survivors."

Inadequate University Endowment.

"To A. C. 17*th April* 1862.

"The Universities Commissioners have effected many important improvements; but the Exchequer purse-strings have been kept so tight, that the Commissioners have not been able to effect nearly what they contemplated. What they have done will entail an annual parliamentary outlay of about £4000; but that is merely a drop in the bucket, for I have made a very moderate estimate of our wants, and find that it would require £20,000 to make us even comfort-

able, and to encourage learning and science as they ought to be encouraged in a University. Our total public funds will not exceed £7000 or £8000. Only think that Oxford has £500,000 at least to give annually for the promotion of literature chiefly, and science in a less proportion. The ordinance which grants salaries to those medical Professors who had none is a comical measure of endowment: it gives us each £100 a-year, but as examination fees are withdrawn, the real benefit is the amazing augmentation of one's professorial living by £35 on an average."

Class Examinations.

"To A. C. 17*th March* 1864.

"Dissatisfied with our Faculty examinations, which never convinced me of the real position of any candidates, except those either at the very top or very bottom of the list, we have determined to hold four class examinations every winter of all students who choose to undergo them; to affix a numerical value to the questions; and when the result is 75 per cent of the whole, to give a prize, and if 50 per cent, to grant a *testimonium*, the production of which at the Faculty examinations will make these very light, except in the Practice of Physic and Surgery, in which the final examinations will still be searching. The great advantages of this innovation are, that the students are encouraged to work steadily in the classes, and that, when successful in these examinations, they are freed from the necessity of keeping up their knowledge of minute details for a distant Faculty

examination. As there never was any improvement effected under the sun without some obstruction arising, so our scheme has met with opposition from the College of Surgeons, on the score that the interests of the private lecturers may be damaged. The College never thinks of the far more paramount interests of the students and the University; and there is a College memorial to the University Court against the class examinations, the only argument used being that a few private lecturers may find that the class examinations of Professors may attract some students to the University classes who might otherwise have handed over their guineas to the extra-academical lecturers."

Preliminary Examination in English.

Journal. "10*th April* 1868.—The Faculty of Arts Examiners of medical students are full of amazement at the prevalent ignorance of English among those who were subjected to examination the other day. One who was asked to define what a hypothesis is, wrote that 'it is a machine for drawing water;' and another, 'that it is something to put under a dead body.' A candidate who was asked to say what Galileo and Copernicus were famous for, and what he had to tell about them, answered that 'they were famous Italian painters; that their works, especially those of Copernicus, were to be found in every fine gallery of pictures; that he had himself seen and admired several; and that this

painter's principal piece — "The Scape-Goat" — was one of these.' Another candidate was not sure about Copernicus, but said that 'Galileo was principally famous for having committed five murders in the course of his life.' Another who was asked the derivation of the word *idea*, said it was compounded of *id*, 'that,' and *ea*, 'those.' Professor Kelland, who was appealed to as to whether he had ever in his experience met with anything worse than this last answer, told us, 'Yes! At Cambridge, a man who was asked what an *idea* was, replied that he supposed it was the feminine for *idiot!*' More than one-half of these preliminary men were rejected for English. Who could they be? Where were they educated? Robertson says they were all well-dressed, respectable-looking young men. Surely their parents should be made punishable at common law for such ignorance on the part of their offspring."

STUDENTS' LATIN.

Journal. "10*th July* 1867.—A candidate to-day presents me with the following Latinity in his prescriptions:—

"'To be taken at eight in the evening: Dosa recipiri octo solis pomeridano.'

"'To be used as a wash for the eyes: Aget usus sit collyrium solito mori.'

"'12 pills, of which one to be taken four times a-day: Pilulæ duodecim, quarum una dabat quater indies.'"

LL.D. Degree at the British Medical Association Meeting.

"To Dr Beddoe, Clifton. 11*th June* 1875.

"Our Senatus are prepared to confer the degree of LL.D., our only lay honorary title, on some leading men of the Association. To prevent abuse we never give more than six at one time. I doubt not that I shall be expected by the Senatus to suggest them; the Medical and Law Faculty will report them; and naturally I shall have, with the members of the Association, all the credit or discredit of the choice which is made. I cannot say that the responsibility hangs very heavily on my shoulders, because I do not recollect having ever felt the fear of responsibility, which many people are constantly referring to, with countenances of alarm, in the affairs of life. But I must do justly, and for that end you must be my counsellor, since I know no one so good."

CHAPTER V.

UNIVERSITY.

UNIVERSITY HONOURS AND PROMOTION — CHAIR OF MEDICINE DECLINED — PRINCIPALSHIP — SIR DAVID BREWSTER'S WISHES — LARGE MAJORITY OF PROFESSORS IN FAVOUR OF SIR ROBERT — TOWN COUNCIL IN FAVOUR OF SIR JAMES SIMPSON — SIR ALEXANDER GRANT ELECTED — LETTER TO THE JUSTICE-GENERAL — LETTER FROM DR MATTHEWS DUNCAN — SIR ALEXANDER GRANT INDUCTED — THIRD REQUEST TO STAND AS LORD RECTOR — CONSENTS — LORD ROSEBERY ELECTED.

Having endeavoured to give some idea, from the papers which Sir Robert Christison has preserved, of the important services which he so long and cheerfully rendered to the University, altogether irrespective of the duties which he discharged as a lecturer and teacher, we proceed to show that, notwithstanding these eminent services and his unquestionable qualifications, promotion to higher spheres of usefulness and honour in the University generally slipped away from him when almost within his grasp. The first chance of the kind occurred in 1855, when the Chair of Medicine became vacant by the resignation of his old and dear friend Dr Alison. This Chair had

always been considered first in rank in the Medical Faculty, both from its intrinsic importance and because of the distinguished men who had filled it. The feeling was very strong both within and without the University that Dr Christison was the man for the place; and it was very creditable to the Town Council, who were at that time the sole patrons of the Chair, that, waiving their natural objections to one who had always been their steady foe, they appear at last to have come to the same opinion. But unfortunately they hesitated too long. The informal offer which was made by one of their number came too late, and Sir Robert felt it to be his duty, in the interests of the University, to decline an appointment which he greatly coveted.

"Alex. Hill, Esq. *September* 1855.

"Dear Sir,—When you called on me about ten days ago to mention that, in the opinion of some members of the Town Council, an offer should be made to me of the vacant Chair of the Practice of Physic in our University, I stated to you that I was content with my present position in the University; but that, should my translation to the vacant professorship appear to the Council generally a step likely to be of advantage to the University, and were the Chair to be consequently offered to me, I should accept the offer, and esteem their resolution a high honour, binding me to do my utmost for the advancement of the office. I added, however, at the same time, that I should make the change not without anxiety.

"The information which has lately reached me renders it not improbable that the Council may do me the honour which you contemplated. This has rendered me doubly anxious to be satisfied that I am doing right. The result is, that I now think I have been wrong. With the short period now remaining for preparation, and with my professional occupations, involving inevitably a great expenditure and constant breaking up of time, I feel that I cannot, during the first and most important session, ensure in any way the leisure required for doing justice to so important a professorship, however familiar I may be with the greater part of its subjects.

"It is needless to say what might have been my determination had there been more time to prepare. But in the actual circumstances, the same consideration which influenced me in assenting to your proposition—viz., the good of the University—induces me, on more mature consideration and a sounder view of the whole question, to assure you that I think I shall be more useful as I am. I have had aspirations, certainly, in harmony with what you communicated to me; and I have been much moved by the honour implied in your wishes, and in your belief that it is shared by the Council at large. But I am all the more bound to be careful that I do not mislead myself, and to refrain from undertaking a duty, however agreeable to me, which I do not feel confident that I could discharge next session to my own satisfaction on such short notice.

"I feel very warmly the kindness and public spirit

of yourself, and of the other members of Council, unknown to me however, who have thought with you in this matter. I have to apologise for the trouble which my earlier resolution may have given them and you. But I am sure you will excuse me, when, inclination and duty being on opposite sides, duty rules my decision in the end."

We now come to one of the most interesting episodes in Sir Robert's University career,—the singular reverse of fortune which at one moment placed the Principalship almost in his hands, and the next swept it hopelessly away from him. Of this strange event he has left full accounts, both in letters written at successive stages of its progress, and in a consecutive narrative composed when the whole occurrence was fresh in his memory. But this narrative treats of controversial and painful events which happened too near our own time to warrant our publishing it as it stands. We must confine ourselves to giving a short history of the chief occurrences, illustrated by suitable extracts from Sir Robert's own writings.

In a subsequent chapter we shall speak of his intimacy with Sir David Brewster, and the high opinion which he had of his conduct as Principal. Sir David, on his part, had no less admiration for Sir Robert, and became so impressed with his high qualities, and his unrivalled knowledge of University affairs, that when his own health began to fail, he expressed to Sir Robert a desire that he should succeed him in the office of Principal; and afterwards,

when his end was near, reiterated this desire in a more marked manner.

Journal. "*7th February* 1868.—At a meeting of the University Court this forenoon, Mr Phin brought me very poor news indeed of Sir David, and with this a remarkable message of kindness from him, ending with an offer that, if I desired, he should write as a legacy to his fellow-curators the reasons for his opinion that I ought to be his successor. This, as at present advised by my conscience, I do not desire, and must not allow."

On the same day came the first intimation that the Professors also desired him for their Principal.

Journal. "*7th February* 1868.—Verily an *annus mirabilis* this for me. Yesterday Playfair told me that our colleagues have been laying their heads together, in order to ascertain whether they could not agree upon some united action so as to keep the University Curators right in their choice of a Principal—which office it now appears must soon become vacant; and that, after five names had been canvassed, two of them of men known as aspirants to the succession, a majority desire to see me in the Principal's chair."

Immediately after Sir David Brewster's death, Sir Robert received renewed assurances of the desire of the Senatus that he should succeed to the Principalship. Thus he writes :—

" Professor Playfair informed me that, being desirous that the Senatus should take united action in a matter

in which they had a strong personal interest, he had been at the trouble to inquire, and had ascertained that a large majority were of opinion that I ought to be their Principal." And soon afterwards he adds: "Sir James Simpson, who had been spoken of as a probable candidate, went to Professor Playfair, believing him a leader among my friends, and said to him, 'It is all nonsense the idea of my being made Principal. It is supremely ridiculous. Dr Christison should be the man.' So Dr Playfair reported to me within one hour after the words were spoken."

The feeling among the general public also was in favour of Sir Robert, and thus, without any solicitation on his part, his appointment to the Principalship seemed almost certain. How came it, then, that in a short time these fair prospects vanished utterly and hopelessly? It is a strange and complicated tale, but we must be content with giving a short summary of the main events.

Notwithstanding the so clearly expressed opinion of Sir James, his own friends were at the same time working hard to secure the appointment for him; and it was soon evident that Sir James had himself entered the lists.

Sir Robert now saw that there was but slender prospect of his being made Principal. The Town Council, to whom he was naturally obnoxious as the open and consistent foe of their former domination over the University, commanded the majority in the court of patronage, and with the Town Council Sir

James's interest was all-powerful. Other causes conduced to destroy Sir Robert's chance. Political feeling was enlisted against him. Lyon Playfair was fiercely assailed for supporting Sir Robert by one of the leading Liberals in the city, on the ground that the election to the Principalship was regarded as a political question by his party. On the other hand, the modest position taken up by Sir Robert, his firm resolution not to press his claims directly or indirectly —conduct so much at variance with the pushing spirit of the day—was mistaken for indifference by some of his own friends.

But Sir James, in his turn, met with unconquerable obstacles, and ultimately Sir Alexander Grant became the new Principal.

In the course of events, Sir Robert's position having been much misrepresented, he deemed it necessary to explain it.

"Having in view the strange falsehoods floating through Edinburgh society on the subject of the Principalship," he himself, in particular, being represented as "a candidate," which he never was, Sir Robert thought it was his duty to communicate to the Justice-General, one of the Curators, his "true sentiments and line of action, or rather non-action," in the following letter :—

"*February* 25, 1868.

"My dear Lord Justice-General, — I feel it equally awkward to be silent and to address your lordship on the following subject. But after repeated consideration, I have come to the conclu-

sion that you might think it odd were I not to say something.

"A short time ago Professor Playfair startled me with the information that many of my colleagues were desirous that I should be successor to Sir David Brewster. The Rev. Mr Phin startled me more with a message from Sir David himself a very short time before his death, to the effect that such also was his desire.

"I felt the necessity of coming immediately to my own opinion on this unexpected proposition. The result was that I desired to see, in the interest of the University, the office of Principal filled by a man of decided eminence in literature or science, who would reside among us, and who possesses an independent income sufficient, with the emoluments of office, to maintain him in that position in Edinburgh which the Principal of its University ought to occupy. Therefore it will be far from an inconsolable dispersion of the prospects which Professor Playfair's information opened up to me, should such a successor to Sir David Brewster be discovered.

"But if the Curators fail to find one possessing such qualifications, and in that case should look at all in my direction, it is necessary that I make up my mind what view I take of certain conditions which, as I learn, have been propounded by good judges. I find some think our Principal ought not to be a Professor; others, that he should not be engaged in practice as a consulting physician; others, that he should be neither; and others, that if a Professor and practising

physician be appointed, he may be left to his own discretion as to his future occupations. On this point my own view is—

"1. That in my instance both occupations cannot be surrendered without a sacrifice of income which would render it no easy matter to uphold the office, as I understand its duties.

"2. That something must be surrendered in order to find time for these duties.

"3. That while, on the one hand, the surrender of physician's practice would involve the largest sacrifice, on the other hand the retention of my professorship, with the plans I have often conceived for it under a possible condition of more leisure than I can now command, might probably be best for the interests of the University.

"4. And finally, that on these questions I should act entirely by such advice as your lordship or the Curators might give me, in the event of an occasion arising for considering them. But if it shall appear not impossible that the Curators, or your lordship, may have to consider these questions, it would be my desire that, before an opinion be come to, you should yourself hear what I have to say in more detail on the subject.

"Unless, and until, matters come to that point, I neither expect nor desire an answer to this letter. I should be very sorry if your lordship supposed I had any idea that you could commit yourself to any course at the present time."

From the moment that Sir Alexander Grant was

mentioned as a candidate for the office, Sir Robert was exceedingly anxious to know what manner of man he was. In the earlier part of the struggle Sir Alexander was in the East, and was personally unknown to Sir Robert, and to all but one or two of the Professors. Was he the kind of man that Sir Robert had declared from the first should, if possible, be found for the office,—failing whom, and in such a case only, he was willing to fill the breach? At last Sir Alexander appeared on the scene. On the 9th of June Professor Fraser called to introduce him, and Sir Robert's first impression is thus recorded: "Brief observation satisfied me that he was the man, and I at once offered him my services." Two days afterwards he writes to his son: "You will be surprised to learn that I have had Sir Alexander Grant for a dinner guest yesterday, and that we may be said to be at once intimate and cordial."

Sir Robert's aid greatly conduced to Sir Alexander's success; and at last he had the pleasure of inducting his new friend into office.

Journal. "*Nov.* 2, 1868.—On Friday last I inducted Sir Alexander Grant, and bade adieu to the post of chairman, which I have held for a year during Sir David Brewster's illness, and a long interregnum between his death and the arrival of his successor. It seems odd that I should be zealously heading a movement to get the salary of £700 attached to the office increased to £1500, while I have discharged all the essential duties of it during twelve months for nothing."

To our own brief and imperfect account of these

events we have much pleasure in adding the following interesting recollections by Dr Matthews Duncan, sent spontaneously to us in a letter dealing mainly with another subject :—

"Sir Robert was also deeply interested in the Principalship, and felt most strongly the unfair representations spread abroad. His letter to the Lord Justice-General is one of the noblest and most honourable documents I ever read. He showed me it and other writings, confidentially. I remember he particularly insisted he was not, and would not consent to be, a candidate in the sense of a competitor; and his being represented to be a competitor he felt acutely. His disinterestedness was singular and admirable, and I shall not forget calling on him about some consultation just as Sir A. Grant left his room. I knew he would have accepted with pride the Principalship; and yet he, on my walking into his room, put his hands on my shoulders, and said, 'I have just seen Grant, and he is the man,' or some such words, with evident great satisfaction. His own disqualification, particularly, was want of wealth; but he did not see that as disqualifying Grant! With reference to this he twice told me all about his house, its value, &c., and his resolution to present it to the University as the Principal's residence, if he was made Principal. I always thought he should have been Principal. I think so still, without derogating from the excellence of Grant."

Sir Robert's friendship with the new Principal was maintained with increasing cordiality until the end.

The final disappointment which Sir Robert sustained in his University career was the loss of the Lord Rectorship in 1880. The circumstances are fully detailed by himself in the following account :—

"*Saturday, November* 6, 1880.—To-day came off the triennial election of Rector of our University, resulting in the appointment of the Earl of Rosebery by the narrow majority of 39 in a total vote of about 2000.

"In July last I was waited on by a deputation of students, requesting me for the third time to empower them to propose me for the Rectorship, and assuring me that I was not to be put forward on the political basis which had ruled most of the previous elections, and that I should have the support of very many students of the Liberal party. A similar proposal was made to me six years ago by a formal deputation of the whole four Faculties. But I was then a Professor in active service; and the students were unaware that by statute no Professor could hold the office of Rector in any Scottish University. The proposal was formally renewed three years ago, in the autumn of 1877, when Lord Hartington was the nominee of the Liberal party. But at that time my convalescence from the illness whose consequences had occasioned the resignation of my professorship in the previous summer was so imperfect, that both my own conviction and the advice of my medical friends compelled me to assure the deputation that I was unable to undertake the duties of the office.

"When for the third time the same application was made to me in July last, I no longer laboured under either the one or the other of these disqualifications. I had indeed no great liking for the honour of so conspicuous a place, more especially as my long experi-

ence of the business of the University Court led me to entertain a very different opinion of the duties of its head from what seems to have been that of every one who has hitherto acted in that capacity. But I felt that, when the students showed so strong an attachment to me as to renew their compliment for the third time, I could not decline it without appearing either to underrate the value of the invitation, or to belie the mutual regard, and even affection, which had marked the whole long period of my incumbency as one of their Professors. I therefore assented on condition that I was to be put forward on account of what had been my University services and professional position, and not as a politician—in which capacity I had been a man of too little mark to be matched against any Liberal candidate of the political eminence which that party could easily secure. I also attached the condition that my nomination should previously receive the approbation of our Principal, Sir Alexander Grant—which was accordingly asked, and was cordially given.

"The Liberal party among the students, making an early start, had in the spring, prior to the winter classes breaking up, proposed for their candidate the new Home Secretary, Sir Vernon Harcourt; but they discovered that Sir Vernon still retained his professorship of International Law in the University of Cambridge, and was thus incapacitated by statute from being our Rector. They now fixed on the Earl of Rosebery for their favourite. I then began to entertain doubts as to the result which I had not felt

before. At the age of thirty-three he was an untried man for such an office as a University Rector. But he had given proof of talent, and I can testify to his being a fluent and clever speaker. The vicinity of his chief residence to Edinburgh put it in his power to do what no Rector except Lord Moncreiff and Sir William Stirling-Maxwell had been able to do—viz., to discharge the whole duties of the rectorial office. Besides these qualifications, and his social position to recommend him, he had shown himself to be so thoroughgoing a Liberal as to have earned, justly or unjustly, the credit of being that rather incongruous character, a Radical peer. Above all, he had pre-eminently distinguished himself quite recently as the main pillar by means of which Mr Gladstone stepped into the parliamentary membership for Mid-Lothian. It is true that the students could not entertain for Lord Rosebery any sense of gratitude for University services—unless, indeed, of 'gratitude for services to come.' But the foregoing considerations satisfied me that the contest was thenceforward to be conducted on the Liberal side as one of pure and keen party politics; and I had sufficient experience of Liberals in such circumstances to be aware that all promises and pledges, away from the interests of their party, would be overborne by vehement pressure in the case of independent men settled in life. How much more, then, in the case of students, some of them mere boys!

"Accordingly, in forming and carrying out their resolution in favour of Lord Rosebery, his student

supporters received active encouragement, advice, and assistance from the Parliamentary Liberal Committee of the city, by whom, as I was assured by one of their own party, the students were even told 'not to spare expense.'

"In the proceedings on the election-day it was apparent in various ways that the organisation of the Liberal party among the students was thorough, and the work of more experienced heads than those of ordinary students. The Conservatives were by no means so well held in hand. Not a few were met lazily walking to College, ignorant that the polling was over. Their Committee also declare that they had pledges to carry a majority of 200 in their favour. I can easily enough accept this statement. It is no improbability that 120 of these were Liberals, coerced by their party to sacrifice every other consideration to party politics, and to violate their promise to those who were falsely charged with being nothing else in the matter but their political opponents.

"The day was won for Lord Rosebery—without a single pang of regret on my part, so far as I was myself concerned. In the end of July I was strong, well, and active, and trusted to further invigoration from my autumnal amusements at Ballachulish. But I had no fewer than three attacks of ephemeral fever during the first five weeks, and consequently found that time had been making rather serious inroad upon my remaining capabilities. It was doubtful whether I should retain ability to discharge the duties of the office according to my comprehension of them.

I could not satisfy myself as to a suitable theme for the address which custom exacts from the Rector. Experience at the meetings of the Social Science Association here in October taught me that at that time at least I could not, without serious suffering, or perhaps danger, deliver *plenâ voce* to a great audience a long oration, which I could easily have accomplished a year ago. When the disappointed party came from the College in a vast compact body to my house immediately after the election, to give vent to their mortification, and inquire how I took the current of affairs, I gave them, from the balcony of my drawing-room window, a short address, the loud delivery of which aggravated grievously certain unpleasant distresses which for some weeks had been occasionally molesting me. In short, I came to the comfortable conclusion that 'tout est au mieux dans ce meilleur de mondes possibles;' and that what had befallen was no great crook in my lot after all.

"But what as to the interests of the University, of learning, and of the public?

"Though I have not regretted the result on my account, I cannot acquit the Liberal party among the students of being guilty of bad behaviour as *cives Academiæ*. All along—throughout the whole contest—they made a point of declaring their regard for me. Nevertheless, they have allowed it to be overborne by the miserable motive of a purely political triumph, in a question with which party politics had no natural connection whatever. If, indeed, as I am informed, they were advised and upheld in their

proceedings, by the Parliamentary Liberal Committee of the city, the students may be in some measure excused for having been misled. But how fraught with evil is the lesson which their misnamed Liberal seniors have thus been teaching our ingenuous youth for guidance in future life!—that for offices purely academic, and having no concern with politics or political party,—learning, science, profession, good service, public respect, every generous consideration, in short, must go to the wall in view of party politics —or rather, to put it plainly, of selfish party interests. It is in vain for them to deny that such is the corollary our youths must inevitably draw from such treatment of the rectorial election. The letter of thanks from Lord Rosebery to his supporters goes far to acknowledge, to defend, and to recommend it."

In the following letter he enters a little more fully into his feelings after his defeat:—

"To Dr Beddoe, Clifton. *9th November* 1880.

"You are right in supposing that the result of the rectorial election has not given me a moment's uneasiness, so far as I am myself concerned. In sincere truth, I have felt the gnawings of the tooth of time so severely since consenting in July to be put in nomination for the office, that I had come to consider it would be well for me to get well out of it if possible. But it was impossible to retire at a date so close on the election day; and, on the whole, I have come well out of the toils which had entangled me.

"I suppose you have seen what, on the spur of the moment, I addressed from the drawing-room balcony to a great phalanx of students—not under a thousand certainly—who came in a body from the College immediately after the declaration of the poll—to condole with me, I presume. What was then said tells truthfully what I then felt, and still feel. But something was left in reserve, which has been drawn out of me by an exceedingly good letter from the University Conservative Association, through their president.

"In reply, after complimenting them on their conduct of the election, and congratulating them on the multitude of their adherents, so great as nearly to secure them victory, and commending them for their attempt to rescue the rectorial election from the stigma of its being a mere contest in party politics, I have added that their whole proceedings, and the numbers who attached themselves to their cause, were in harmony with the mutual respect and affection which had subsisted invariably betwixt their predecessors and me during my long incumbency as one of their professors, and that I believed it would not be long before many of their opponents would be sorry for having allowed the same feeling on their part to be overridden by the gratuitous introduction of the element of irrelevant party politics."

Sir Robert bore his defeat with the equanimity which distinguished him in all reverses of fortune. But the physical strength which had stood him in such

good stead, far beyond the allotted threescore years and ten, now began to fail. When, on the evening after the contest, that remarkable event happened which he has slightly touched on in his own account, —when a thousand young faces were turned eagerly towards the erect and vigorous-looking but aged figure that stood alone on the balcony,—his voice, in the perfect stillness that prevailed, commanded the audience as powerfully as of old; there was no hesitation in his manner—no difficulty in finding the words, kind to his friends, generous to his foes, in which for the last time he addressed the students: but it was a great effort nevertheless, and on retiring from the balcony, he was obliged to throw himself down on a sofa in a state of alarming exhaustion.

It is impossible altogether to acquit the students from the charge of ingratitude, when they refused the only honour it was in their power to bestow to the veteran professor who, for more than half a century, had been in a peculiar manner the students' friend; but there is one circumstance, not noticed by him, which in a great measure exonerates them. When the election took place, three years had elapsed since he resigned his Chair. Hence he was personally unknown to the majority of the student electors; and as but few students are in a position to know much of the services rendered in the past by individual professors, the deficiency in the bond of personal intercourse was a serious obstacle to success. But after all, if many, carried away by the great wave of Radi-

calism which swamped the country at the time, proved ungrateful, many on the other hand were faithful; and the severance of the last tie which bound Sir Robert to the students was perhaps more interesting and dignified amidst the regrets for a defeat borne with magnanimity, than if it had been attended with the shouts of victory.

CHAPTER VI.

SIR HENRY ACLAND'S ESTIMATE.

HITHERTO Sir Robert Christison's character and actions have been displayed almost entirely by the light of his own writings; but it is obvious that the biography of a man would be very incomplete which did not include some estimate of his life-work by his contemporaries. For this purpose it was necessary to obtain the aid of men well qualified by their own attainments and by personal intimacy to show forth in particular the influence which Sir Robert exercised in his double capacity as a medical man and as a man of science. Of contemporaries who had grown up side by side with him, and the course of whose life had run parallel with his own, none remained. Of a younger generation, a few friends, eminent in medicine and science, still survived, but they were somewhat advanced in years, and were much occupied with professional work. There was one friend, however, of a still younger generation, who, although settled at a distance, had become more intimate than any one else with Sir Robert in his later but still

vigorous years. Sir Henry Acland had acquired this special advantage by having paid several visits to Sir Robert both in Edinburgh and at his Highland quarters.

In the leisurely converse of holiday hours he thus gathered a fuller knowledge of Sir Robert than even those who were most intimate with him in Edinburgh could hope to do in occasional meetings amidst the strain and bustle of professional life. Sir Henry had also enjoyed ample opportunities of learning his friend's powers as a debater and man of business at the annual meetings of the Medical Council. Finally, it was perhaps no small advantage that Sir Henry was in the main a witness from a distance, and could not be influenced in forming his judgment either by local or national bias. To Sir Henry, therefore, we applied, and he in the kindest manner agreed to write a chapter on Sir Robert in his capacity as a physician. Unfortunately, soon afterwards the state of Sir Henry's health forbade his undertaking so severe a task in addition to numerous prior claims upon his time and energies. He did not, however, leave us without a substantial proof of his goodwill, as the following letter shows :—

"*Sept.* 6, 1885.

"Dear Dr Christison,—I have thought much and often of the desire which you kindly expressed long since, that I should write to you the impression left on my mind by the long-continued kindness of your father towards me. You know how unwilling I was

to relinquish last year the permission to prepare with others of his friends a memoir of some portions of his scientific and professional life. The impossibility of then giving the time and strength required for so responsible a task prevented me, alas! from doing that which will be done by abler friends. A sense of the inadequacy of what in a more restricted way I can now say, has week by week stopped even this lesser tribute of gratitude and admiration.

"I must, at the outset, tell you how I first became acquainted with your father. I went to Edinburgh as a student in 1844, and called on him without introduction to ask a favour. It was a peculiar one. Dr Christison had at the time an influential voice—I was told a conclusive one—in an appointment to an important intellectual office. The ablest candidate was an old schoolfellow of mine. In some respects he was a person of weak character, and easily led. Reports were spread calculated, and with justice, to injure his own prospects, and to deprive the office of a person of singular genius and unusual skill in the use of it. I believed the reports, though partly true, to offer on the whole no just bar to his holding the post. I stated the case to the powerful professor, of whom I stood in much awe. I can see him now, patiently listening but evidently ready to pounce on any undue bias in my statement. When I had done, he simply said in his clear strong voice, 'I think you are right—your schoolfellow is a remarkable man; I shall inquire further. I may say that as far as my present opinion goes, I shall do what I can for him.'

He did, and the candidate was elected. But in the end he proved to have been ill fitted for the office, and the appointment was unfortunate.

"In all the years I knew your father, I could see no sign that he regretted the many kindnesses shown to me, a young stranger, and to my friend. He thus inspired me alike with confidence in his justice and with esteem for generosities which never afterwards wavered. A casual observer may think this a trifling tale. It is not so. Strong of purpose, keen, even impetuous, he might have resented the forward zeal of a youth for a friend. With your father it was otherwise. He was a man of wholly scientific temper, incapable of being diverted by any consideration from the pure quest for truth in any inquiry in which he was concerned. This temper pervaded his whole being, his reason, and his moral nature alike, so that though he might seem sometimes harsh or hasty, it was because he instantly resented any fallacious bias, whatever was its cause or whoever had it. And yet behind this intensity was a tender spirit which would make him, busy as he was, listen (with a touch of humour, perhaps) to the intruded anxieties of a stranger. Observe, he was at the date I mention in the zenith of his strength of body and mind, and what that strength was they only who equally delight in both can understand. Above all things, he was a true man — a man of indomitable courage in both parts of his nature, mental and physical, and equally endowed in both.

"I am not here speaking of his achieved results,

but of the character of him who achieved them. Of his ulterior knowledge, and the use he made of it as a whole, the world through you will presently become aware. I wait your summary with intense interest. Of his love of knowledge as such there is this to be said: when I last saw him he was near eighty years of age. He was intense as ever. He even seemed to be in some sort such as might have called forth the saying concerning Solomon,—'He spake three thousand proverbs: and his songs were a thousand and five. And he spake of trees, from the cedar tree that is in Lebanon, even unto the hyssop that springeth out of the wall: he spake also of beasts, and of fowl, and of creeping things, and of fishes.' But indeed it would be a narrow view of his discourse, or of the fabric of his mental acquirements, to suggest that his conversation was remarkable only for knowledge. It was more,—it was 'organised knowledge,' that is, *Science* properly so called. All was in its place, and in due relation of the subject to the surroundings in the rest of the universe. You cannot imagine your father either neglecting or despising any matter worthy of attention when he should attend to it, or unfairly exalting it or depreciating it. There was a manly vigour in his handling, like Nasmyth's hammer,—gentle enough for the smallest, with no waste of power; powerful for the large and tough, but power to spare. So here was the key, as I take it, to the perfectness of the intellectual treatment of whatever he touched. Then he touched much. I have none of his works with me (for I am

writing out at sea), and so I cannot quote them. But what is here said could be illustrated from any one of them—from his 'Materia Medica' or his 'Medical Jurisprudence'; his Writings on Fever, his Papers for the Royal Society's Transactions, or his Report on Prison Dietaries.

"He would be as keen on the temperature and methods of preparing a pharmaceutical extract as on the physiological or therapeutical effect it would produce when made. He could be as eager on the precise nutrition and work-value of a few ounces of porridge as he would be broad and philosophic on the best kind of culture—general, scientific, or practical —for the perfected biologist or physician. And this is not all: he had, if ever any man, a rare power of speech, with a music in his voice which only such an one as is here so briefly described could have—being also a musician. His fine mellowed and modulated song can never be forgotten by those who heard him, nor can the memory be lost of his stentorian declamation when angry as one of the torrents of his dear mountain glens,—justly angry in debate. But this fire was tempered and this music graced by abiding playfulness, which was intertwined with every subject into which they could enter. This arose from his humorous appreciation of character—the result of his wide interests in men and things—combined with hatred of all pettiness and meanness. He had much to do with both rich and poor, with professors and students, with men of science and magnates

among practical men, and this in many sciences, in many arts, in many walks of life. Statesmen consulted him, scientists looked up to him, citizens believed in him. His University could not do without him. From these several relations in life he gleaned his store of anecdotes, witty and friendly sarcasms, and his parables of veiled wisdom. I wondered at him more and more, the better I knew him,—not less in his sustained cheerfulness when he was ill, than when he revelled in the plenitude of health on the mountain-side, and jeered me on Ben Voirlich when past threescore years and ten for feeble Southron appreciation of 'mountain dew.' And so I might ramble on and never say enough. I heard his stentorian voice of thanks when, in the great quadrangle of the University, the Volunteer students gave the veteran professor—their military chief—a sword of honour. I heard his persuasive words of debate mixed with more than one stern rebuke of opposition, which he considered to be factious or unworthy, while discussing the wants in future of these very students. I hope never to forget the lesson of either. If any doubt the correctness of these words of affection and gratitude, I would bid them weigh his scientific writings with something of the scientific insight that he had, and read his paper on Medical Education, in which he considers the relative bearing of scientific and practical study on the future of the medical profession.

"I pray you to forgive these few words, which must

seem, I fear, to a loving and appreciative son, feeble though well-intended words, concerning a noble father.—I am, dear Dr Christison, yours faithfully,

"HENRY W. ACLAND."

By Sir Henry's advice, we transferred our application to Professor Gairdner; and the excellent manner in which he responded to our application, in spite of a rather short notice and the hard pressure of more necessary work, we leave with confidence to the judgment of our readers.

In applying to Professor Fraser to write a chapter on Sir Robert's scientific work, we felt that we selected the man best qualified for the task, as he added to the necessary personal attainments an intimate knowledge of Sir Robert, acquired by acting for several years as his trusty lieutenant in the class-room and laboratory. We have much satisfaction in introducing here these two valuable contributions to our work.

CHAPTER VII.

SIR ROBERT CHRISTISON AS A PHYSICIAN, BY PROFESSOR GAIRDNER.

In one of the well-informed, though anonymous, notices of Sir Robert Christison which was published at the time of his death in 1882 (probably at the instance of some one better qualified than the author of this chapter to do full justice to the subject), the following paragraph occurs, and may well be taken as the text and basis of the remarks that are here to be made by a physician and a pupil on the professional character and career of his much-revered teacher :—

"Sir Robert Christison was not only a great physician, but a physician of a type of which he was almost, if not altogether, the last representative. The early period of the century at which he attained to a distinguished position in his profession, and the exceptional prolongation of his professional career, have marked him out as one who was so situated as to combine in himself the scientific experiences of two generations. It has so happened that the sixty years which may be taken as the era of his professional life have embraced a period of transition in medical science. The early part of that period was one in which the art was beginning to feel the influence of the method of precise observation and research which had

been established in the physical sciences. Medicine was, in the hands of competent men, beginning to throw off the trammels of conventionality and empiricism which had retarded its development with all the force associated with respectable tradition, and a new school was being promoted which called into exercise a broad philosophic spirit, and a capability of using the fruits of collateral research for the advancement of the healing art. Sir Robert Christison was, from the beginning, eminently qualified for taking his place in the ranks of those modern physicians. His mental qualities were those which must enter into the composition of the man who can employ and utilise the statistical method. He could see with patience, drawing conclusions without bias, and applying his conclusions with the greatest tact and the most profitable results. And if this early manifestation of his professional spirit was conspicuous, the hereditary professional tendency which he retained to give full play to all that was good in the older system of medicine was of eminent service in his maturer and later years, when the bias in medical science came to be, perhaps, a little too much to the more purely physical methods in the detection and treatment of disease. It was this combination of the Hippocratic and the modern scientific method which distinguished Sir Robert Christison, and which made him, so to speak, the physician of two ages—a type which the modern scientific spirit and modern methods of medical education make it almost impossible for the times to reproduce. In many quarters it is doubted whether the gain which has accrued to medical science by the employment of percussion, auscultation, thermometry, electricity, and chemical diagnosis, has not been to a great extent balanced by the loss of accurate physiognomic observation, and the application of that wide code of coincidences which formed the scaffolding of the old physician's diagnosis and the basis of his treatment. The modern student of medicine is great in the acquisition of means; the older practitioner was much more accustomed to look to ends."

In attempting to set forth some of the details on which this critical estimate is founded, it cannot fail to be remarked that, as applied to Sir Robert Christison, the character is not sufficiently distinctive; for it was no special distinction of his career that he was "the physician of two ages." Many men before him, and some since, have been called away after an active life covering, more or less completely, two generations; and so rapid, and in some respects so marvellous, have been the changes during that period in all that relates to the diagnosis, the treatment, and above all the prevention of disease, that any one who has enjoyed and retained the confidence of the profession for a much less period than sixty years might fairly be called "the physician of two ages."[1] It was certainly not the mere length of his active life, nor even the qualities of his mind in general, that entitled Sir Robert Christison to be thus described, but rather his association from a very early period of his career with some of those more scientific methods, which had only just begun to influence the medical art at the time when he emerged from his practical training in the advanced analytical chemistry, as carried on in Robiquet's

[1] Take, for example, the changes to be observed as in progress between the first and the fifth, or last, edition of Sir Thomas Watson's famous work, and faithfully reflected in the ever-open mind of that most consummate physician, and it will certainly be conceded that even between 1843 and 1871 it was impossible for a man of the first rank to have occupied the position, successfully, of a consulting physician without being, in a certain sense, "the physician of two ages." Yet Sir Thomas Watson was, far less than Sir Robert Christison, the representative of the modern scientific method as we now understand it.

laboratory in 1821. It was this genuinely scientific discipline of his own mind, with the habitual exactness which it both required and promoted in his case, and to which the inborn tendencies of his nature gave full scope, that made Dr Christison at once more fitted than others at that remote date, and to the last not unfitted, to be a leading representative of the modern spirit of medical research. And no one who knew him at all intimately, either in his own laboratory in the earlier part of his long career, or (as in the case of the present writer) chiefly as a consulting physician afterwards, could fail to observe that his whole manner of thought and action, even to its minutest details, was pervaded by this essentially modern spirit—and this, even if we admit that he outlived the period when it could be reasonably expected of him to have kept pace with all that is most characteristic, for good or for evil, of the most modern medicine. It would be, perhaps, even a more correct description of Dr Christison's earlier career as a physician, to speak of it as an anticipation of the modern, rather than as a setting forth of the more ancient, condition of the medical art. It was this feature of his work that specially characterised not only his 'Treatise on Poisons' and other subjects in Medical Jurisprudence, but also the almost infinite researches on individual medicines, and on pharmacology and therapeutics, which attained their most complete expression in his 'Dispensatory,' published in 1842; and at an earlier date the admirable and still fresh and valuable pathological and clinical researches, ex-

tending from 1829 onwards, which took ultimate shape in his 'Treatise on Granular Degeneration of the Kidneys,' published in 1839. These were the foundation-stones on which his reputation as a physician was built, and in a very real sense they may be said to have continued to the end the best illustrations of his method; for although his extremely interesting, and in their day very important, writings on the Fevers were the result of a long and carefully cultivated experience, they were not, and are not, in the same sense the outcome of original research, nor have they attained to a like pre-eminence in the disclosure of novel results, or definite advances upon the previous state of knowledge or of opinions, as the earlier works just mentioned. The elaborate papers on Scurvy, however, published in the 'Edinburgh Monthly Journal of Medicine' in 1847, and the researches on the diet of prisoners in the same Journal for May 1852, belong to the same class of writings as those first referred to. In all these Dr Christison appears as a physician trained in the school of exact physical and physiological research; the in-goings and out-comings of the body are taken account of, and the effects of derangements in the constitution of the blood, and in the textural nutrition of the organs, are dealt with in a manner that would never have occurred to one not accustomed to investigation in the laboratory. You feel that you are in the presence of a mental attitude, and of a kind of investigation, that was entirely different from those of his predecessors; and therefore, that a definite impulse

is being given not only to the art, but also to the science, of medicine.

To give additional point to these remarks, it is necessary to take into account the school in which Sir Robert Christison himself learned the art of medicine, and the representative men who may be said to have carried the torch of medical enlightenment, in the domain of the physician's side of the medical art, up to the time when he became a consulting physician. He has himself, in the first volume of this biography,[1] given us some account of the lectures, and also of the personal characteristics, of James Gregory and of Home; the former, the leading consultant in Edinburgh almost from the time of Cullen till his own death in 1821—the latter, perhaps the most popular and approved teacher of Materia Medica in these islands, up to the same date. Sir Robert's personal recollections of Dr Rutherford, who was probably even more distinguished as a clinical teacher than either of these, are not so well defined as to be available for remark; but in the library of the Royal College of Physicians of Edinburgh, MS. notes have been preserved which are amply sufficient to illustrate the clinical teaching up to, and at, this period in Edinburgh—which, as Sir Robert himself bears testimony, was greatly superior to that of London, so far at least as medicine was concerned.[2] It can scarcely be an error to describe the whole system of medical pathology, and the whole aspect of medical diagnosis, and to a great extent also of treatment, as

[1] Vol. i. pp. 76-85.

[2] Ibid., p. 189.

moulded on the doctrines of Cullen, whose 'Nosology' and 'First Lines' were still, and continued long afterwards to be, the only text-books of the Edinburgh school in these departments. Gregory himself was, indeed, no slavish follower of Cullen, nor yet of any other master. All the traditional accounts of him correspond with Dr Christison's estimate, that he was "a lecturer of the highest order"—one who, alike in "expression, voice, and manner," showed forth "the vivacity, self-reliance, boldness, and determination of a powerful intellect." Sir Thomas Watson, afterwards for many years the leading physician of London, who left St Bartholomew's Hospital in 1820 to seek for practical instruction in the Edinburgh school,[1] has, equally with Sir Robert Christison, left us in his classical work numerous traces of the influence of this distinguished teacher upon the young and receptive minds of that generation; and four volumes of most interesting, and apparently almost verbally accurate, MS. notes of his lectures, taken by Christison himself, remain to attest the powerful stimulus which they must have afforded to the well-disciplined mind of the future Professor of Materia Medica in Edinburgh University. Yet in these lectures, original, bracing, and full of rich personal experience as they were—often, too, engaged in academically discussing, and not seldom disputing, the doctrines of Cullen—it is not too much to say that there was no trace of any new method, or of any real and solid advance, either in diagnosis or in pathology; and although there are

[1] Vol. i. p. 190.

bold innovations in treatment, some of them judicious,[1] and some (as we should now say) very much otherwise, there is nothing that even approaches the modern spirit of research. It is said that when James Gregory went to London on one occasion, and was for the first time introduced to Dr Matthew Baillie, the son-in-law of John Hunter, and one of the pioneers of medical pathological anatomy in this country, the two great physicians, each at the head of consulting practice, were severally asked about their first impressions of each other. Gregory frankly expressed high admiration of Baillie, but remarked that he could get nothing out of him but medical pathology. Baillie, on the other hand, was equally pleased with Gregory's wit, discursiveness, and learning, but said that it would be all much more to the purpose if he only knew a little more about medicine! It is probably not too much to affirm that, when young Christison proceeded to Paris in 1820, pathological anatomy and chemistry were a sealed book to

[1] Among the judicious innovations must be classed the firm and altogether admirable tone adopted throughout as to the dietetic management of the gouty habit, and particularly as to the necessity for early and resolute self-control in the use of alcoholic stimulants. Gregory was himself of a gouty family, and the personal details he gives show that he was probably well entitled to set forth his own experience as an example of the benefits of great abstemiousness, which was certainly not adopted or proposed in these days from any other motive than that of strong conviction, in opposition alike to the precepts and the practice of the majority. It may be permitted to a teacher of medicine, who has been privileged frequently to refer to these valuable notes, to express here a wish that some selections from them could be published even now as a monument of one who has left no printed record of himself in the department of practical medicine, in which he was so long an acknowledged leader.—W. T. G.

him, except in so far as he may have been taught the "seats and causes of diseases" out of the works of Morgagni, Lieutaud, and others in the preceding century; and as regards the relation of these to physical diagnosis, just then opening out into an unknown vista of future value and usefulness in the hands of Laennec (the first edition of the 'Auscultation Médiate' was published in 1819), we have his own damaging confession,[1] that while his intimate friend Cullen (grand-nephew of the professor) began to follow Laennec's hospital visits assiduously after Christison left Paris, the fame of the new investigations in diagnosis did not reach them in time to withdraw Christison, even for a single day, from Robiquet's laboratory to the wards of the Necker hospital. That the two "canny Scotsmen" were not greatly attracted by the reputation of Broussais,[2] at that time a leading star in the Parisian firmament, is, perhaps, not to be regretted, except in so far as that the meteoric character and controversial aspect of his doctrines would have been sure to lead a mind like Christison's in search of the solid and impregnable foundation for a real advance, which was afforded by the admirable method, regardful alike of the old and the new, pursued by Laennec[3] with a patience and an exactness which

[1] Vol. i. p. 23. [2] Ibid.

[3] From the Preface to the second edition of the 'Auscultation Médiate,' published in 1826, we learn that "more than three hundred young physicians of all the nations of Europe" had come to Paris to learn and to practise stethoscopy under his personal guidance, either in the Necker hospital, or in La Charité, to which Laennec was transferred in 1823. It is interesting to find (besides the well-known and, now

were precisely in accordance with Christison's own best instincts, and, as we know, with the whole character of his work in another department. But at this time it was evident that chemical research had preoccupied him with a power amounting to fascination, as an instrument of future progress in the medical art; and, as he truly observes, "any one who means to master any branch of chemical analysis in a few months, must give up his days entirely to it." On the whole, we may congratulate ourselves that what he did, Christison did so thoroughly and so well as "in a few months" to place him, according to his teacher, "en état d'entreprendre toute espèce de travail chimique;"[1] and, among other things, to win the Chair of Medical Jurisprudence, and become the rival of Orfila in the investigation of poisons.

While these remarkable advances in research were going on abroad, there was at least one man in Edinburgh who was labouring hard at pathological anat-

venerable name of Dr C. J. B. Williams of London) those of Gregory and Cullen—"l'un fils, l'autre petit-fils, des célèbres professeurs d'Edimbourg, de ce nom"—enumerated in this list. Dr Duncan, jun., is also referred to as one of the foreign professors who had come to Paris exclusively to "verify most of the signs" spoken of in the first edition. By a subtle and highly effective, though quite courteous and even good-humoured irony, Laennec contrasts the method of these inquirers with that of a few of his own *confrères* in Paris, and especially with that of M. Andral, who, he says, "a voulu continuer ses observations dans un entier isolement, en évitant avec soin de se tenir au courant des modifications et additions auxquelles avaient pu m'amener mes nouvelles recherches, et que j'enseignais chaque jour . . . dans les salles de clinique de la Charité, attenantes à celles où M. Andral faisait ses recherches." Not an unimportant consideration, surely, for readers of the famous 'Clinique Médicale'!

[1] Vol. i. p. 279.

omy in its connection with clinical research; but he did not succeed in obtaining a chair in the University, and remained to the last unconnected officially with any hospital, or even with the medical school. Dr John Abercrombie is certainly one of the most eminent among the Scottish physicians of the first quarter of this century, and his career extended to 1844, when it was suddenly cut short by a rupture of the muscular fibres of the heart, causing hemorrhage into the pericardium. The writer of this chapter can scarcely claim to have more than seen Abercrombie, but he has derived from those who knew him well, and few of whom now survive, a very distinct impression of the immense enthusiasm, the conscientious labour and exactness, the methodical preservation of multitudinous notes, and the searching analysis of results, which enabled this great physician to do so much for the medical art amid the trammels of an overpowering dispensary practice in his earlier days, and with the weight and responsibility upon his shoulders of the first consulting practice in Scotland at a later period. What alone made this even a possible feat to a man of the most unwearied diligence and mental activity was, that Abercrombie, without being officially recognised as a teacher, was nevertheless constantly surrounded by pupils, who were attached to him not only by the good to be obtained from his precepts and example, but by the more technical bond of an apprenticeship, still in those days in fashion in Edinburgh. His was a true "poliklinik," though in full operation here before the term

was invented in Germany—certainly long before it became known in this country. It enabled the chief greatly to enlarge the basis of his own experience, especially among the poorer classes; and it furnished to the privileged circle of his pupils, necessarily small numerically as compared with those who could attend a hospital visit or a clinical lecture, what in some respects was the very best kind of clinical teaching—that, namely, which extended fully over the moral as well as the physical part of the physician's duty to the sick. Yet it may be open to doubt if this kind of personal training, so far as Abercrombie himself was concerned, was of the right kind to have made him an efficient or successful professor of medicine. Great deference is due to the opinion of Sir Robert Christison,[1] that Abercrombie was in fact, in 1821, superior to both the other candidates for Gregory's Chair in the University. But many striking examples might be adduced tending to show (and none shows more powerfully on one side of the question than that of Christison himself) that in order to attain to eminence as a professor, or as a medical teacher on the great scale, in a large school, it is almost of essential importance to have begun this particular kind of work while young, or, at all events, before the growth of habits formed in other directions, or in other fields of exertion, has divided the attention, and perhaps impaired the flexibility, if not the elasticity of mind, which alone can enable a man, however well qualified otherwise, to

[1] Vol. i. p. 78.

adopt the attitude and life-work of a professor as his real and chief business. Abercrombie was, and had long been, a very much occupied man before 1821;[1] and according to the opinion of some, at least, of those who knew him well, it would have been a far from improbable result of his being appointed a professor then for the first time, that he might not have proved a real success, at least in sequence to James Gregory, although unquestionably far more imbued with the modern spirit of research than Gregory was. Abercrombie's best influence was exerted through his printed works and through his pupils, one of whom, the *first* Dr Begbie,[2] afterwards shared with Sir Robert Christison the consulting practice in Edinburgh to a considerable extent.

Eminent, however, as Abercrombie undoubtedly was both as a physician and as a pathologist, there is no evidence that he excelled, or even attempted to excel, in the modern methods of physical diagnosis. Had Sir Robert Christison devoted his mind in this direction specially when in Paris, or had he, by an extension

[1] Abercrombie's probationary essay 'On Paralysis of the Lower Extremities from Diseased Spine' was published in 1804; his work on the Diseases of the Stomach and Intestinal Canal, in 1828; and on Diseases of the Brain and Spinal Cord, in 1834.

[2] Author of 'Contributions to Practical Medicine' (Edinburgh, 1862), and several other very valuable contributions to medicine; but not to be confounded with his son, Dr James Warburton Begbie, who was a well-known figure in the Edinburgh Royal Infirmary, and a most distinguished clinical teacher, as well as the most widely employed consulting physician in Scotland, at a considerably later date. Dr James Begbie, *sen.*, was almost a contemporary of Sir Robert Christison, and by far the most prominent of those who inherited the traditions of Dr Abercrombie.

of time, added an attendance in Laennec's wards to his other accomplishments, the way was fully open in Edinburgh, long after this,[1] for a stethoscopist, well qualified otherwise, to have advanced at once to the first rank. It was wellnigh two decades afterwards ere this gap was effectually supplied. The penetration of physical diagnosis, in the modern sense, into the Edinburgh medical teaching, was by no means very rapid, although Dr Spittal, a physician to the Royal Infirmary, and afterwards Dr Henderson, who became Professor of General Pathology, made praiseworthy efforts in that direction. "Non omnia possumus omnes."

The death of James Gregory opened a way in consulting practice, which was at once, and very satisfactorily, occupied by Abercrombie, who, on being defeated as a candidate for the Chair, was probably only assisted to his right and his unquestioned position in the eyes of the public and of the profession. Dr John Thomson also, who with Abercrombie was an unsuccessful candidate for Gregory's Chair, but who had held the Chair of Military Surgery, and was to be the first holder of that of General Pathology, was a man of great learning, with a Continental training especially in surgery and pathological anatomy,

[1] The death of his friend Cullen, and of the junior Gregory, in rapid succession, no doubt placed Edinburgh at a disadvantage in this respect. We have seen that both of these were personal followers of Laennec. At a much later date Dr John Scott rose to a certain amount of eminence in consulting practice, entirely on the ground of his being accredited with superior attainments in physical diagnosis, acquired in the first instance from Laennec himself.

and had opened up some new lines of investigation in a once famous 'Treatise on Inflammation,' which, however, belonged more to surgery than to medicine as then taught. Dr Thomson's record of experience was also mainly surgical, and he was generally understood to be rather sceptical as to drugs, and not at all sceptical but rather denunciatory, as regards the employment of mercury. Nevertheless he sought for and obtained a fair share of medical consultations about this time. He never became a physician to the Infirmary, however, and therefore never was a clinical teacher. Dr Home was an Infirmary physician and clinical teacher, but had little consulting practice, and failed as a Professor of Practice of Physic.[1] There was a need, therefore, of new blood in the Royal Infirmary and in the clinical department connected with the University. But Christison was not appointed to the Infirmary till 1827;[2] and as regards consulting practice, he was in any case too young, and at this time was eager only for laboratory and hospital work: besides, the duties—then absolutely new to him—of the Chair of Medical Jurisprudence occupied him entirely and fruitfully, as the result showed. Dr Wm. Pulteney Alison, Gregory's son-in-law, who had lectured for Gregory, and whose character as a physician was maturing, but not matured at this time, was devoting himself to the Chair of the Institutes of Medicine, to which he was appointed from that of Medical Jurisprudence, and also to a wide experience of hospital and dispensary work

[1] Vol. i. p. 76.

[2] Vol. i. p. 370.

among the poor, which afterwards not only gave him a considerable consulting practice, but enabled him to speak with authority on medical, and also on certain social questions. The one other prominent man, approaching Abercrombie in age, who entered into rivalry with these in consulting practice, was Dr Davidson, a good, sound, judicious physician and man of the world, and a great—indeed in those days quite a remarkable—reader of German and all other new literature in medicine. But Dr Davidson was not a hospital physician, nor yet a teacher in any sense; nor is it on record that he contributed in any way whatever to the literature or to the advance of medical research.

Thus it came about that Dr Christison, when appointed very early in life to the Chair of Medical Jurisprudence, which he held for ten years, was led, alike by his instincts and by circumstances, into the line of professional life indicated by himself in the following passage from the speech made on the fiftieth anniversary of his induction as a professor:—

"From first to last I have made my University office my main and primary object. I did so while I was Professor of Medical Jurisprudence. I continued to do so when I was translated to the Chair of Materia Medica. On that occasion I was strongly recommended by friends, to whose opinion I could not but feel and yield great deference, to take advantage of the notoriety which attended that appointment, and 'lay myself out,' as it is said, for physician's practice. But I determined to make my new Chair my primary

object, and let physician's practice look after itself—and perhaps come in the course of time. For many years Materia Medica, and in connection with it Clinical Medicine, were my sole occupation. As I proceeded I schemed an undertaking, which, unfortunately, I have not been able to carry through. This was no less than to investigate the untrodden field of Therapeutic Physiology. I began it, and soon obtained results which greatly encouraged me to persevere with it. But, unluckily for me, the success of the newly founded University College and King's College in London, the subsequent foundation of the Queen's Colleges in Ireland, and a prohibitory regulation of the College of Surgeons of Dublin, which prevented Irish students from frequenting the University of Edinburgh as they had previously done, so seriously reduced my income by the reduction of our medical students, that it became no longer possible for me to bear the expense of what was to be a costly and very long inquiry; and at that time the University possessed no fund, as now, for aiding professors in defraying their class expenses. At the same time, physician's practice, coming of itself, relieved me from all pecuniary difficulty, but, on the other hand, consumed my whole disposable time. I shall ever regret my disappointment. Therapeutic Physiology is a splendid and still little trodden field, without the cultivation of which we shall never make any material advances in the knowledge of the Actions of Remedies, and their real uses in disease. I can easily see that it abounds in future discoveries, which I

must leave, but with a strong recommendation to pursue them, to my successors; of whom, I am glad to say, I know several amply able, and also disposed, to undertake the task."

It cannot be doubted that the "undertaking" here referred to was an important one in the eyes of Dr Christison, and its non-fulfilment a subject of sincere regret to him. The severe and prolonged training in laboratory work which his duties as a medical jurist imposed upon him, and still more, perhaps, the strictness of the discipline implied in frequent appearances as a witness in the law courts, had combined in producing a habit of mind which could ill be satisfied with the loose and often utterly fallacious statements which, at that time and since, have too often been considered admissible in practical treatises on the effects of remedies in disease. Nothing, perhaps, has more degraded medical literature and medical conduct in the eyes of the more scrupulous members of the profession, or has led at times to more sarcastic criticism from without, than the easy and confident tone in which the efficacy of a drug or of a complex formula or prescription is too often pompously, and not seldom profitably, paraded—and this on evidence which, if appealed to in a question of physics or of physiology, or still more in one of those complicated issues determined in courts of law in cases of alleged poisoning, would be at once scouted as not only inadequate, but as utterly foolish and discreditable to the utterer. It is not necessary always to suppose that in such reckless or vain assertions anything positively wrong

or misleading is deliberately intended. The too sanguine therapeutist may have been the dupe of his own enthusiasm, or of a very limited and inadequate experience, or of an experience entirely misinterpreted —of an ignorance, in short, of the first principles of scientific investigation so great as to cover its own defects. But Dr Christison could hardly have failed to place before his own mind, at times, the image of a too confident or a too plausible witness of this kind in the court of medical opinion "run to earth" by such a cross-examination as he has narrated in vol. i. p. 286, wherein the easily assumed air of authority and the pretensions to "vast experience," &c., are so cruelly exposed. It would be very possible to quote by the dozen, books and papers, not always of low degree in general medical estimation, in which much more of fluent assertion in therapeutics is to be found ostentatiously displayed in a single page than could be easily verified or proved to the satisfaction of a judicial mind in the experience of a lifetime. From all such overweening confidence in respect of remedies —and especially new remedies—and from statements in general that would not bear to be examined all round in therapeutical science, Dr Christison's mind recoiled with an instinctive aversion. Hence the urgency and importance, in his view, of the investigation of "therapeutic physiology."

In compiling his 'Dispensatory' (published in 1842), Dr Christison must have become more and more formidably conscious of the deficiencies in therapeutical science, which it was the object of his unfulfilled

scheme or "undertaking," as above indicated, to diminish. In this most notable volume and masterpiece of its kind, everything that could possibly be stated about drugs on his own personal testimony—everything that could be accurately discovered, or corroborated, or corrected, or tested, or weighed, in the laboratory; and everything also that an experience, now of twenty years' standing, had enabled him to infer from experiments on poisons, often conducted in the high interests of justice, or from careful and by no means too experimental treatment of the sick—was marshalled with a terseness, order, and lucidity which had certainly never been equalled—perhaps, indeed, never before even attempted—in the history of the art. With respect to facts of the former kind, the book is one, even now, of an almost unapproachable completeness and exactness. The modern method prevails in every corner of it, and very few of the thousands of independent statements in it require, or admit of, correction. It was clearly possible to determine, as matters of scientific fact, how the relative weight and proportion of the more active ingredients of a drug were affected by long keeping, or by the season of the year at which it was procured, the part of the plant used, by percolation with hot or cold water, &c.; and being clearly possible, it was actually done in many cases, so as to give rise to innumerable corrections in the pharmacopœias, and to leave in most instances no more to be said. But how was it possible, as a matter of scientific fact, to record, or even approximately to determine, the relative effi-

cacy of a multitude of alleged remedies in epilepsy? Or, could a really modern and exact scientific method in this instance be applied even as regards the particular action and mode of operation of any *one* remedy? The very abundance of the materials existing, or supposed to exist, in medical literature, was here the greatest source of discouragement; for at this date epilepsy for the most part remained incurable, though medical dissertations and text-books from time immemorial had been replete—not only with remedies, but with elaborate formulæ for its cure.

The building up of a real therapeutic science on this footing was a making of bricks without straw; and no one living in 1842 knew this better than Dr Christison. Yet he did not abandon drugs, or despair of them, or indiscriminately distrust them, as some of his contemporaries had begun to do even at this date, and a few years later more openly, when Sir John Forbes had written his famous articles on "Young Physic," and on "Nature and Art in the Cure of Disease." But neither did Christison ever employ remedies, or direct his pupils to employ them, after the cumulative and unscientific fashion then, and long afterwards, current in England, where a formula having at least half-a-dozen ingredients was supposed to be almost a necessary part of routine, mainly to please the apothecary or "general practitioner," and therefore was assiduously cultivated even by pure physicians. Dr Christison's method was not, perhaps, strictly and rigidly scientific—it

could not well be so; but as regards the object to be aimed at, it was simplicity itself. He accepted, not indeed without reservations, but in substance, whatever appeared to be *catholic—i.e.*, universally accredited, as to the action of remedies; and in personally directing their use, he endeavoured, both by precept and example, to secure that as *few* remedies, rather than as *many* as possible, should be in operation at once. And this method he deliberately adopted, not (as some did) because the fashion was supposed to be changing in the direction of a general scepticism or want of faith in remedies, but because he was sincerely convinced that it was a first step, and a necessary first step, in the direction of an exact and trustworthy science of therapeutics to entirely reform, or very greatly to diminish, the monstrous complexity or *farrago remediorum.* And when young Edinburgh graduates were accused, as they often were on going into England (perhaps not always without reason), of not having learned "the art of prescribing," it should not be forgotten that the gravamen of the charge amounted to this—that under Christison's discipline they had grown into an abhorrence, if not contempt, for the art of prescribing as practised by English apothecaries, and illustrated in the thousands of elaborate formulæ scattered through the text-books and medical treatises of the past, as if the whole art of medicine consisted in the compilation of formulæ, and rendering them into more or less elegant dog-Latin.[1]

[1] One formula only dwells in my mind as definitely associated with Dr Christison's name and with his practice in the Royal Infirmary, for

The author of this chapter attended the class of Materia Medica in the University of Edinburgh in 1842-43, and has a most vivid impression of the instructions personally communicated to him at the above date as being in accordance with what is here stated. But it must not be supposed that there was anything controversial, or elaborately promulgated as matter of doctrine, in Christison's mental attitude towards the current therapeutical polypharmacy. It was, on the contrary, a kind of teaching that teaches more and better by its silence and abstinence than by the use of strong language. He taught by example as much as by precept; and at this date the example was needed, even in Edinburgh. Of the three physicians other than Christison who were professors in the University, and who acted also as clinical professors in the Royal Infirmary, Dr Graham, the Professor of Botany, was a most stout and unhesitating therapeutist; a strong believer, especially,

certain cases of obstinate vomiting. It consisted of what was then called Medicinal Naphtha; of which he writes in his 'Dispensatory' as follows: "The usual dose is five minims, and it is conveniently given with a drachm of compound tincture of cardomoms, made into an ounce mixture with water merely." My recollection of it is as a six-ounce mixture, but otherwise exactly as above "with water merely"; and my impression is that there was scarcely ever anything much more complex than this; which, in order to appreciate the force of the remarks made above, should be compared with the long lists of elaborate compilations in Hooper's Vade-Mecum, or any other of the routine books of the period. Dr Christison's name became associated in Edinburgh with a laxative pill; but it was only a slight modification, in respect of quantities, and also in respect of the substitution of Barbadoes for the so-called Socotorine Aloes, of Hamilton's pill, long famous as a mild aperient.—W. T. G.

in enormous does of calomel and opium, pushed rapidly on to rather profuse salivation, and also not a little of a polypharmacist. Dr Alison, who had just assumed the Chair of Practice of Medicine in succession to Home, but who was already a teacher of great experience, greatly loved and venerated by all, was not only a considerable polypharmacist, but had the singular habit of scarcely ever leaving his patient (if much complaining) without a *new* bottle or prescription of some sort; and as he often visited the wards several times a-day, the bottles tended to accumulate till neither the patient, nor the nurses, nor the professor himself, knew precisely what was being taken and what was not. Dr Alison, in fact, dispensed his "bottles" much on the same principle as he gave away his sixpences to the crowd of beggars at his door in Heriot Row, as he left home in the morning. Suffering humanity was ever too much for him; it was impossible for him to refrain from an immediate, and often unwise, demonstration of practical sympathy. And moreover, in a kind of uncritical way, he must be taken as thoroughly believing in all the multitudinous remedies he employed, or rather prescribed, because (as a friend of the writer, now a professor in Aberdeen, often remarked) he mostly *paid for them himself* when prescribing for the poor out of hospital, and had a current account with Macfarlane the chemist, which must have cost him a large sum every year, to meet this class of emergencies. Dr Henderson, again, without being at this time a declared homœopathist, or even formally

a sceptic, was coquetting with homœopathy, on the principle (so far as could be discovered from his conduct) that one thing was just as good as another, and that nothing was worth very much, in the way of curing disease. Dr Craigie, who was not a professor, but an acting physician in the Royal Infirmary, was perhaps easier to follow as regards the rules or principles of his therapeutics than any of these; but it was all on the principle of remorseless and repeated depletion, in all the moods and tenses of it, till it might almost be said of his patients as of the unfortunates commemorated by Boileau—

"L'un meurt vuide de sang; l'autre plein de séné."

In the midst of these utterly irreconcilable vagaries of practice as displayed before the rising medical generation of 1842, Dr John Thomson, who was *ab agendo*, but still to a certain extent a traditional power, had been for years denouncing mercury (the one indispensable remedy with many others) open-mouthed, as a pestilent and entirely pernicious drug; and he had carried with him in this opinion Syme, who in his surgical practice not only eschewed mercury utterly, but also professed (like Thomson) an almost entire scepticism as regards almost all internal medicines, with the exception of rhubarb and soda! Christison's practice, therefore, though never placed in any attitude of declared hostility to that of any of his colleagues, had many attractions, on account of its comparative simplicity, for those whose minds had been guided by his oral instructions, and in this

respect was certainly much more in accordance with the modern, or exact and scientific method, than with the old precedents derived from Galen or from Sydenham; but it also left a kind of general impression on the mind that the Professor of Materia Medica and Therapeutics, while he unquestionably believed in drugs, did not believe in many drugs, or in overmuch drugging, in any particular case. At all events, the remarkable phenomenon of a professor specially concerned with remedial agents, and who habitually employed so few of them, and these in such simple combinations, and with such a manifest disregard of the portentous formulæ still current in the text-books, was not to be got over as a great and patent fact, illustrating the essential absurdity of the kind of medical practice which was dictated mainly by the financial necessities, and fostered by the habits, of practitioners trained according to the traditions which produced the "surgery-boy" type of medical student, and which culminated in the Bob Sawyers and Ben Allens of the period. It was not to be supposed for a moment by any pupil of Christison's that the combination of caution, reserve, and simplicity of method which he showed forth in his clinical instructions was the result of ignorance, or of an indiscriminating scepticism; for the 'Treatise on Poisons,' on the one hand, and the 'Dispensatory' on the other, were there to assure them that no man living had given such a profound study, and such a precise and luminous interpretation, to all the facts about the most powerful of these remedies which could be regarded

as well established. What certainly was inferred, and probably rightly inferred, from the silence and the abstinence, rather than from the positive doctrine of the teacher, was that, in the materia medica and the therapeutics of the day, there was an immense and tangled forest of noxious and unreasonable polypharmacy, which could only be cleared by the strictest attention to simplicity in detail, and to the action of single remedies, studied physiologically as well as therapeutically.

How completely this attitude of mind with respect to therapeutics has been justified by the experience of the last thirty or forty years, there is no need at this time of day to declare to the existing generation of physicians. It is one of the points, perhaps indeed the chief point, in which Dr Christison, considered as the "physician of two generations," may claim to be one of the earlier representatives of the modern spirit. For it ought to be remembered that this gospel of simplicity and moderation in respect of drugs was not, with him, the outcome of any controversy (such as that with homœopathy in Sir John Forbes's case), but came to him quite simply and naturally, as the fruit of those sustained and precise researches into the action of powerful drugs which had become necessary during his occupancy of the Chair of Medical Jurisprudence. That he was not able, during his tenure of the Chair of Materia Medica, to carry his ideas more fully out in the direction of a positive and physiological therapeutics, may be a subject of some regret, but can hardly be attributed to him as a fault,

after his own candid explanation given above. That he made some strenuous efforts in this direction will be admitted by those who are acquainted at all with his writings on opium, on digitalis and digitalin, on the action and uses of alcohol (published from his lectures by Dr Beddoe in the 'Medical Times and Gazette,' 1878), and will be even more readily admitted by those who are able to appreciate the impulse which was given, and perhaps is still being given by his instructions, to the research of a younger generation, in respect of the manner in which the problems to be encountered were presented, and the field to be cultivated was surveyed and mapped out. It can be said of him, what must be exceedingly rare after a service of fifty years in a university, that up to the latest period of his tenure of the Chair he never lost hold on the inquiring minds of his hearers, many of whom are now accomplished therapeutists. The researches on the Calabar bean,[1] initiated by a well-known experiment on himself, which nearly cost us the life of the veteran professor, were carried on in the laboratory of the University by his assistant, now Professor Fraser, and must have appeared to Sir Robert Christison as a realisation in one direction of the scheme or "undertaking" of his own earlier days; while numerous other isolated researches emanating from the Edinburgh Medical School, and from its pupils in all parts of the world, may be said, without any extravagance of language, to owe their origin to

[1] "On the Ordeal Bean of Old Calabar."—Edinburgh Medical Journal, 1855, p. 193.

the stimulus of his example, and to the methods which he, for half a century, had been labouring to call into being.[1] But if any one should desire to know what he himself thought of the matter after a quarter of a century of lecturing on therapeutics, he may be referred to the address on Therapeutics, read before the British Medical Association in 1858. He will find there a most luminous statement at once of the difficulties of the subject in general, and of the "blanks in our knowledge" with respect to four of the most widely circulated drugs—digitalis, colchicum, sarsaparilla, and opium. There is only one of the four in regard to which Dr Christison could be said to have been at any time a sceptic; while in the case of two of them he had unusually strong positive convictions, and had devoted both time and thought to working them out. Yet he by no means indicates, even with regard to these two, a satisfied, or "rest-and-be-thankful" state of mind; and most of the questions which he propounds with respect to them are still, notwithstanding all the progress of experimental therapeutics and "therapeutical physiology" since 1858, far from being fully cleared up. But the reader, whether a professed therapeutist or not, can hardly fail to perceive, in the details of these inquiries, the same outgoing of the modern or truly scientific spirit of research which

[1] And yet, in the very latest 'Bibliographical Index' appearing in connection with the most notable work on 'Pharmacology, Therapeutics, and Materia Medica,' which has ever emanated from one of his pupils, I can find only one reference to Sir Robert Christison's name, viz., under Carbonic Acid. One or two others occur, it is right to add, in the body of the work.—W. T. G.

made Christison's lectures at all times so interesting and valuable, whether as a careful exposition of what was known, or as a perfectly unprejudiced estimate of the "blanks in our knowledge," set forth in all cases so as to afford the *maximum* of help towards a new inquiry.

In perusing this admirable address, whose only fault is its brevity, one is struck more than ever by the modest estimate of therapeutical science by one the best part of whose life had been devoted to it. "From whatever side we look at the science of therapeutics," he writes, "humility best becomes us all. I will not aspire to lay before you a new system of therapeutics; for neither can I devise, nor, unless I am greatly mistaken, can therapeutics itself at present supply, a new system which will stand inquiry. I will not attempt a retrospect of the present progress of therapeutics, because such a retrospect would be rather the reverse of satisfactory. I have not even a list of new remedies to recommend to your notice, with my own estimation of them; for although this is the 'patent age of new inventions' in the materia medica, I submit that we have not much to boast of in the numerous additions which have been made of late years to our catalogue." One chief cause of this backwardness is that "the science has long been in want of cultivation and cultivators. . . . The extraordinary interest excited for some time past by the science of pathology has attracted to that branch of the practice of physic almost every original inquirer of note who has appeared in the ranks of medical practice for nearly

forty years past. No one has been left to care for the twin science of therapeutics. . . . It is well, however, that things have so fallen out. Pathology, forty years ago, was in a deplorably backward state; but now it stands out prominently, with the dignity of a systematic and favoured science. . . . The thorough cultivation of pathology, too, was an essential preliminary to the thorough cultivation of therapeutics. Disease must be known before it can be cured; and many instances might be mentioned in which accurate views of the pathology of disease have paved the way for an accuracy and precision in the researches of the therapeutical inquirer to which he would otherwise have been a stranger. What may we not hope for therapeutics, should the time arrive when the same engrossing ardour which has been long applied to pathological researches shall be turned in the direction of therapeutical physiology and practice?"

With these generous anticipations, which it may be hoped are now in progress towards realisation by his successors, we may leave the question of therapeutical science proper, and proceed to certain aspects of Dr Christison's work as a physician, which were not so directly connected with the special duties of the Chair of Materia Medica. His treatise 'On Granular Degeneration of the Kidneys,' published in 1839, has been very generally recognised as being by far the most important separate contribution to the clinical history of "Bright's Disease," reckoning from the time of the first publication by Dr Bright himself in 1827 to the period at which the microscope began to

be systematically used in connection both with pathology and diagnosis. Dr Christison's researches, moreover, were not only the most important, but the first in date, of those which followed Dr Bright's, either in the way of corroboration or the contrary. The earlier portion of them, including the more essential, and at the time new, facts as to the accumulation of urea in the blood, were published in the 'Edinburgh Medical and Surgical Journal,' in 1829, only two years after Bright's discoveries were announced, and contributed powerfully to the support of these discoveries against the objections urged in Dublin by Drs Graves and Osborne, and in London by Drs Elliotson and Copland. Dr James Crawford Gregory was at this time working side by side with Dr Christison in the Royal Infirmary, and published an important paper in 1831; but his premature death left the field entirely open to his colleague, and in a comprehensive historical survey of the whole subject in 1840, M. Rayer, the greatest of Continental authorities upon renal disease, remarks upon the Edinburgh researches as being of the highest importance. While indicating certain differences of view as to the acute disease, he adds: "Quant à la forme chronique de la maladie, il (Christison) en a exposé les caractères avec la plus grande exactitude. Il a surtout étudié les altérations de l'urine et du sang, avec un soin particulier qui est un des principaux mérites de son travail. Il a aussi donné une attention soutenue à l'étude des causes de la maladie et de ses affections sécondaires."[1] The important position

[1] Rayer, Maladies des Reins, vol. ii. p. 554.

thus assigned to these researches by almost contemporary testimony has remained quite undisturbed; and when he recurred to the subject in 1851, some years after microscopical study had been applied to it pretty extensively in London, Edinburgh, Brussels, &c., Dr Christison found it necessary only to extend and adapt his former conclusions to the new order of facts, with the assistance as regards microscopic details of Dr William Sanders, at that time his clinical assistant, and afterwards Professor of General Pathology in the University. It seems unnecessary here to add anything further to what has been placed on record as regards this portion of his work by Sir Robert Christison himself in the first volume of this 'Life';[1] but, although it would be inexpedient in a chapter like this to enter too much into purely medical details, it may be permitted to the present writer to add that, in his defence of the use of diuretics in Bright's Disease, Dr Christison throughout manifested the same invaluable qualities as a therapeutist that have been hitherto attributed to him—absolute freedom from prejudice, and a legitimate regard alike for theory and for carefully cultivated experience. The "modern method," however, had no place here, except in so far as that personal observations, made in the laboratory upon the effects of these remedies on the excretion of albumen, enabled him to withstand the prepossessions which a too limited view of the pathology of the disease had established to a great degree in the practice both of London and Dublin.

[1] Pp. 382-387.

Dr Christison's doctrines as regards fevers were first promulgated, in such a way as to attract attention, in two very elaborate, and even now very instructive and readable chapters which he furnished to the 'Library of Medicine,' edited by Dr Tweedie, in 1840; one of these being on the "General Doctrines of Fever," and the other on "Continued Fever," as it was commonly then, and to a certain extent still is, designated; as, for example, in Dr Murchison's famous work. In dealing with this part of the subject, the writer of these lines feels bound to acknowledge that his own personal opinion differs in many points from that of Sir Robert Christison, not only as expressed in detail in 1840, but as indicated incidentally in the much later document of 1858, "On the Changes in the Constitution of Fevers and Inflammations in Edinburgh during the last forty years." Nor is it to be forgotten that at the time of Dr Christison's first systematic publication on the subject, his opinions were those which, both before that time and for several years afterwards, commanded the general assent, not only of physicians in Edinburgh, but of by far the greater number in this country. Moreover, his earlier experiences in fever occurred at a time when no other doctrine had been seriously entertained than that all the varieties of "continued fever" observed in these islands were merely varieties dependent upon the "epidemic constitution" of the period, and were in no respect specifically distinct from one another.[1] And he himself, in the retrospect above

[1] Dr Christison's first contribution (in all probability) to medical

indicated, extending over much more than a generation —1817-58—and carrying all the weight of experience and reflection of one who never failed to weigh his words, and to observe moderation even in the midst of controversy, has clearly admitted that, after an interval during which this state of mind was shaken considerably as regards one of the types of "continued fever," he had reverted to his own original opinion.

It is certainly not easy, and would be here quite out of place, to introduce the details of the argument so ably and characteristically maintained in that retrospective sketch, by which Dr Christison arrived at a conclusion certainly not in accord with that which is now all but universally accepted. On this particular topic he appears not as "the physician of two generations," but as the representative, to the last, of a state of opinion more than two generations old. Yet it is difficult to resist the calm, carefully measured, and logical manner in which this doctrine is set forth as the result of forty years' continuous experience. "Were we wrong?" he writes (in regarding synocha and typhus as "one and the same disease"). "There was a time when, impressed by new phenomena in the progress of our epidemics, I was inclined to conclude, and actually admitted in my lectures on

literature was a thesis—"De Febre Continua quæ nuper in hac urbe epidemica fuit; ex exemplis, apud nosocomium regium tractatis, deducta: 8vo, Edinburghi, J. Pillans et filius, 1819." From this Latin thesis he has made several extracts, in the paper above referred to, "On the Changes in the Constitution of Fevers and Inflammations in Edinburgh during the last forty years."—Edinburgh Medical Journal, January and July 1858.

clinical medicine, that we had been in error; that synocha, or relapsing fever, is a separate disease, *sui generis;* that true typhus is another; and that our synochus, or intermediate form, is only a modification of typhus. But on later reconsideration, I am much inclined to revert to the original doctrine, so far as to see in synochus an ally of synocha rather than of typhus, and possibly nothing else than an unresolved synocha." The progress of events, and especially of microscopic pathology, since these words were written, has shown that synocha, or relapsing fever, is a disease characterised all over the world—*e.g.*, in India, in Germany, and in this country—by a very peculiar micro-organism, or *spirillum*, inhabiting the blood, and identified with the fever in its successive relapses in the same individual; which, moreover, can be inoculated both in man and in certain animals, with the result of producing a like fever, and a reproduction of the *spirillum*, in them; while it may be said with nearly absolute certainty that this peculiar organism is not found in typhus fever, nor in any other known disease, save relapsing fever. Had these facts been brought clearly home to Sir Robert Christison, even in his extreme old age, it is difficult to suppose that he would have still maintained the position indicated in the sentences above quoted. But on the other hand, it is by no means certain that he would have considered a concession to the modern doctrine of relapsing fever as involving the admission of inconclusiveness in the argument, in general, of his retrospect.

What is more to the purpose at present is that,

whether that argument is right or wrong—whether the diseases now commonly designated as typhus, enteric, relapsing fever, are specifically and under all circumstances distinct or not—Dr Christison was guided solely by his personal convictions and experience to a view of them that has been appealed to so recently as two years ago, and by so distinguished a scientific authority as the late Dr Carpenter, who regarded them as in essential harmony with the doctrine of evolution applied to the phenomena of epidemic diseases.[1] It is therefore perhaps, even now, too early

[1] See the remarkable article by Dr Carpenter ('Nineteenth Century,' February 1884, p. 336), from which the following brief extract may be here inserted, as illustrating the bearing of the argument on the present subject: "Although from the time when Sir William Jenner pointed out the marked distinctions between typhus and typhoid (or enteric) fevers, their distinctness has been generally recognised, and any difficulty in diagnosing a case has been commonly set down to ignorance or imperfect observation, yet I have the high authority of the late Sir Robert Christison for stating that these diseases are not at all times, or in all places, so definitely distinguishable. Not long before his death, the Nestor of the medical profession in Scotland emphatically assured me that, 'looking at this class of diseases from the natural history point of view, he had been led by the experience of half a century to regard them not as uniformly marked out, one *from* another, by well-defined boundaries, but as shading off gradationally one *into* another.'" In writing to one of the editors of this work in reference to the above, on January 13, 1885, Dr Carpenter adds: "This expression was brought out by my asking him (Sir Robert Christison) whether he remembered the type of the epidemic which prevailed in Edinburgh in the years 1835-37, when I had been clinical clerk in the Infirmary under Dr Traill, Dr Alison, and himself; and whether he would refer it to the 'typhus' or the 'typhoid' of Sir William Jenner—being myself unable to connect my very distinct recollection of its characters with either of these types. He replied that he also had a very distinct recollection of it, and that he had always regarded it as partaking of the characteristics of both; and then used the expression of his opinions as to the general question, which I took the liberty of recording, very

to regard the questions connected with the so-called "continued fevers" as definitively settled; and although the present writer inclines throughout to take part with Dr Murchison in the criticisms which he has published on what he regards as inadmissible in Sir Robert Christison's later doctrines, yet, as the deliberate exposition of the convictions of a lifetime, it is certain that these admirable writings of the "older generation" will, for a long time to come, be regarded as among the most interesting and valuable of the documents from which the history and doctrine of epidemic disease during the present century will have to be written. Dr Christison is, in fact, the only observer who, from carefully recorded early experience, extending from 1817 onwards, has been able to identify the relapsing fever which appeared in Edinburgh in 1843 (then regarded universally, and even by his colleague Dr Alison, as a "nova febris"), with the synocha of Cullen. The value of this identification, in the history of the subject, is immense, and is by no means cancelled if we should have to admit, after all, that some of the issues which he founded upon it were mistaken. And in respect to the general doctrine of what has been called the "change of type" in disease, which he held to the last in common with Dr Alison, and every physician of note in Edinburgh

nearly, if not exactly, in his own words. I have received a large quantity of evidence during the last twelve months of the general truth of the gradational doctrine—especially in regard to scarlatina, diphtheria, and croup." See also Dr Aitken's recently published monograph—'Darwin's Doctrine of Evolution in Explanation of the coming into being of some Diseases,' 1886.

at that period, it can scarcely be regarded as conclusively settled, even now, that the immense weight of testimony on this side of the question can be finally set aside.

A few words only remain to be added as to Professor Christison's character, not as an academic teacher, or a leader in science, but as a medical adviser and consulting physician. It seems not improbable that his career in these respects may have been somewhat retarded at first by his devotion to laboratory work and to exact scientific research. We have seen that in Paris he spent his time so much in this as to have missed the greatest initiation in clinical and diagnostic discovery of the present century. And we have already seen that in his use of remedial agents there was none of that straining after effect, or desire of innovation, that often helps to build up an early and sometimes an unsound reputation. In the earlier years of his professoriate, we have his own confession that he was not even desirous of private practice, but "determined to make my new Chair my primary object, and let physician's practice look after itself—and perhaps come in the course of time." It is not difficult, certainly, to imagine the young, or even the middle-aged, Christison in the precise dilemma of John Hunter (always excepting the language!), who, when he was disturbed in his researches to go to a patient, is reported to have complained humorously that he "must go and earn this d——d guinea," as he would be sure to want it to-morrow! But the reputation built up in this

way, and the solid force of a character based upon consummately accurate observation and persevering clinical research in hospital, gradually opened a way, and placed him naturally in the front rank, without any efforts specially directed to this end. On the death of Abercrombie in 1844, followed by that of Davidson in 1847, it was universally felt throughout the profession that there was only one man who could take the place of the former. He accordingly passed to the position of senior consultant, without arousing any jealousy or suspicion.

The long course of his training in research, and his early career (perhaps, indeed, habits extending back even to school or college days), had left upon his manner the impress of a certain reserve, or, as some considered it, *hauteur*, which was, perhaps, not quite favourable to a rapid or extreme success in private practice. While it was felt to be as absolutely certain as anything human could be, that from him you would get the most mature, the most well-considered, and on the whole the most just opinion that could be had of a case, it was not always equally certain that the opinion would be expressed in the best possible way so as to accomplish what was wanted and intended. This was not from any want of sympathy, but from a kind of shyness which interfered with the freedom of his communications with the sick, especially when they were of a kind likely to cause distress. He preferred—and in many cases did so conscientiously and as a matter of pure duty—to reserve all his confidential utterances for the

retiring-room and for the medical attendant. It is probable that this personal characteristic might have placed him at a disadvantage—even had he been disposed to enter the lists with them—as compared with either Abercrombie or Davidson. But on the other hand, no man that ever occupied the position was more entirely straightforward, or more free from every trace of *finessing*, or of placing before his own mind any consideration but that of the most absolute duty. The reputation of his brother practitioners, the secrets of families, the honour of the profession at large, were absolutely safe with him. It was impossible even to conceive of him as aiming at personal display or self-aggrandisement in the details of a consultation. And he was trusted accordingly. All men felt sure that Sir Robert Christison only lived for his work and his professional duty, and gave to it all of his best. And how good that best was! the outcome of a long life of study, of thought, of action, of research; a dignified manner, a kind heart, an athletic frame, youthful and supple to the last, and a noble presence, befitting one of Nature's aristocracy.

CHAPTER VIII.

SIR ROBERT CHRISTISON'S SCIENTIFIC WORK, BY PROFESSOR THOMAS R. FRASER.

In attempting to give a short description of the scientific work of Sir Robert Christison, I have found it convenient to arrange that work in two or three main groups.

Dr Christison's career of scientific activity may be considered to have begun soon after he graduated in 1819, and to have continued until a very short time before his death in 1882. For upwards of half a century, therefore, science in several of its branches, and especially in branches related to medicine, received from his unremitting industry many valuable contributions.

The direction of his work was from the first a physical one. Natural philosophy and mathematical science from an early period constituted for him strong attractions, and indeed at one time appeared likely to divert his life-work from the course it fortunately adopted into the occupations of an engineer. After he had definitely adopted medicine as a pro-

fession, and while he was yet an undergraduate, chemistry became one of his favourite pursuits. The short interval that elapsed between the time of his graduation and the early commencement of what became his long connection with the University as a teacher, was largely spent in chemical study. He then also formed the intention, while doubtful of success in obtaining the Chair of Medical Jurisprudence in Edinburgh, of becoming an extra-academical lecturer on chemistry; and he even began, in January 1822, the preparation of a course of lectures on this subject. A carefully and closely written manuscript of 148 pages remains to show that he had intended that the first part of the course should consist of a full discussion of chemical physics. Before he had advanced further, however, his preparations were interrupted by the intimation of his appointment to the Chair of Medical Jurisprudence, into which he was inducted in February 1822. Ten years afterwards, in 1832, he was transferred to the Professorship of Materia Medica, which was held by him until 1877. During a portion of the time when he held these two Chairs, he also acted as a physician and clinical teacher in the Royal Infirmary, and engaged in practice as a physician. Dr Christison's occupations, therefore, led him to take a direct and personal interest in several departments of medical science; and his great industry and love of investigation resulted in his contributing to the advancement of knowledge in each of them, as well as in other subjects which were not necessarily related to, but were indeed, in

a few instances, altogether disassociated from them. As these contributions cannot be arranged in chronological order corresponding with the periods of his main occupations, it will be convenient to consider them in accordance with their subject-matter.

I.—MEDICAL JURISPRUDENCE.

In the many-sided subject of Medical Jurisprudence Dr Christison's work deals mainly with injuries to the person, the requirements of medical evidence, the expectation and duration of life, and the science of poisons. The subject of hygiene, whether relating to individuals or to communities, was apparently not then definitely recognised as a branch of Medical Jurisprudence, for it is not represented in the syllabus of his course of lectures which was published in 1826.[1]

Injuries to the Person by Violence.—A historic interest is attached to Dr Christison's first investigation on injuries by violence, as it was originated during a judicial inquiry in the notorious case of Burke, in the trial of Burke and Helen Macdougall for the murder of Margery Campbell.[2] The question arose, whether certain appearances observed in the body of the victim had been caused by violence before or after death.

[1] Syllabus of the University Course of Lectures on Medical Jurisprudence. Edin., 1826.

[2] Cases and Observations in Medical Jurisprudence.—IV. Murder by Strangling, with some Remarks on the Effects of External Violence on the Human Body soon after Death. Edinburgh Medical and Surgical Journal, xxxi., 1829, p. 236.

To solve this question, Dr Christison instituted a series of experiments, which have clearly defined the characteristics of contusions and of internal hemorrhages produced by violence on the living as distinguished from the dead body.

His second investigation in this branch of forensic medicine was on the appearances caused by burning;[1] and it led to as distinct a [illegible] specially undertaken experiments, of the characterising appearances produced by this cause; and equally with the former investigation it remains a standard of reference and guidance to the present time.

Medical Evidence.—This important subject was authoritatively discussed, probably for the first time in this country, and its difficulties formally stated and its principles defined, by Dr Christison. His mature views, founded on an exceptionally large experience, were stated in an address delivered before the Royal College of Physicians of Edinburgh in 1851.[2] It is worthy of note that in this address he recommends that "in all criminal cases involving important medical evidence, the whole proceedings bearing directly or indirectly on that evidence should be subjected, before the trial, to the review of competent men, the higher in their profession the better, who may be made witnesses if necessary." He also recommends that "in civil actions, when it is thought right to add the opin-

[1] Cases and Observations in Medical Jurisprudence.—IX. Two Trials involving the Question of Burning before or after Death. Edinburgh Medical and Surgical Journal, xxxv., 1831, p. 316.

[2] On the Present State of Medical Evidence. Monthly Journal of Medical Science, xiii., 1851, p. 401.

ions of consulted witnesses to the primary medical evidence, the Court should appoint one or more such witnesses, for its own protection against partial testimony." In justification of the second recommendation, he adds: "The most crying evil of the present system of medical evidence—that of which I have heard both the Bench and the Bar complain most bitterly—is the contrariety of opinion obtained in civil actions. . . . What else can be expected, when the witnesses are informed of the facts by one party only, whose interest it is to communicate as little as possible of anything not favourable to his own side, and who, by frequent partial communings of this kind, succeeds in converting them into a sort of witness-counsel, with a strong, though it may be unconscious, bias in favour of only one-sided opinions?"

Expectation and Duration of Life.—From 1847 to 1882, Sir Robert Christison held the appointment of chief medical adviser to the Standard Life Assurance Company, whose business is one of the most extensive among the life assurance companies of this country. In this period of thirty-five years he prepared five quinquennial investigations on the deaths that had occurred, the earliest of which appeared in 1853, a few years after the first investigation of a like kind had been published by Dr Begbie on the experience of the Scottish Widows' Fund. He also prepared two reports on the medical statistics of the Colonial Life Assurance Company, before it had become incorporated with the Standard Company. In these papers he laid down the principles which to

a great extent are now followed by medical practitioners when they are called upon to perform what is often the difficult task of advising assurance companies on proposals for insurance.[1] Closely bearing upon this subject of the expectation and duration of life were the topics discussed by him in his address on Public Health, delivered in 1863 as President of the Public Health Section of the Association for the Encouragement of Social Science.[2] He there enters fully into—(1) the defects of the Scottish Register of Deaths; (2) the time and cause of the disappearance of ague in Scotland; (3) the causes of continued fevers, and of their putting on the endemic form; (4) the etiology of diphtheria in Edinburgh; (5) the tendency of town-life to increase consumption and other scrofulous diseases; and (6) the comparative rarity of consumption in the Western Islands.

Toxicology.—The fourth of the branches of Medical Jurisprudence to which Dr Christison contributed—that of toxicology—is undoubtedly the subject in which he gained his greatest reputation, and in which his labours were most conspicuously productive of benefit to medical science. In the lecture, already referred to, on the present state of medical evidence, he refers to the neglect of the subject of Medical

[1] The statistics compiled by Sir Robert Christison, including those subsequent to his last Report, have been utilised by his sons, Sir Alexander and Dr David Christison, in the preparation for the Company of Reports on the Home and Colonial Death Claims from 1845 to 1880. This valuable series of investigations has thus been continued nearly to the present time.

[2] Address on Public Health, 1863.

Jurisprudence at the time when he was called to teach it in the University; and he proceeds to state that he naturally desired to raise it from its "low estate." "For this end it was desirable to choose a particular branch only of a subject so comprehensive as to extend both its roots and ramifications into all the other medical sciences. My choice fell on toxicology—in itself no narrow field, but one almost untrodden by British cultivators, yet at the same time more full perhaps of varied interest than any other, better fitted at all events to attract general notice, and also more likely to yield good fruits in the hands of a young labourer."[1]

His public scientific life may be said to have been inaugurated by an endeavour to carry this resolution into effect, as it opened with the publication of an investigation on poisoning with oxalic acid,[2] which was carried out with the co-operation of his friend Dr Coindet, of Geneva. This investigation includes a large number of experiments on the lower animals with this poison, in which its local and general effects, its condition after absorption into the blood, the structures acted upon, and the value of several chemical antidotes, were examined. The bearing of the results that were obtained upon legal medicine was also ingeniously and elaborately discussed. He was able to demonstrate that—(1) "oxalic acid, when introduced into the stomach in large doses, and

[1] *Loc. cit.*, p. 402.

[2] An Experimental Inquiry on Poisoning by Oxalic Acid. Edinburgh Medical and Surgical Journal, xix., 1823, pp. 163 and 323.

highly concentrated, irritates it or corrodes it, . . . and death takes place by a sympathetic injury of the nervous system; (2) when diluted, it acts neither by irritating the stomach nor by sympathy, but through the medium of absorption upon distant organs; (3) though it is absorbed, it cannot be detected in any of the fluids, because probably it undergoes decomposition in passing through the lungs, and its elements combine with the blood; and (4) it is a direct sedative—the organs it acts upon through absorption are the spine and brain primarily, and the lungs and heart secondarily, and the immediate cause of death is sometimes paralysis of the heart, sometimes slow asphyxia, and sometimes a combination of both." It is a remarkable testimony in favour of the ability with which this investigation was planned and carried out, that the above conclusions represent, with a few associated facts subsequently ascertained, the present state of knowledge regarding the action of oxalic acid. The first conclusion, by referring the sudden or rapid death produced by large quantities in concentration to "a sympathetic injury of the nervous system," has anticipated the views of modern physiologists on the mechanism of shock. The third conclusion states briefly a fact which subsequent investigators have merely elaborated, by defining some of the chemical changes undergone by oxalic acid after its absorption into the blood. The fourth conclusion indicates the outstanding feature in the action of oxalic acid, which renders it an exceptional substance in the group of acids—that, following the

absorption of even small quantities, it paralyses the central nervous system.

The research on oxalic acid constitutes one of the few in the department of toxicology which were undertaken by Dr Christison apart from the motive of solving difficulties in connection with medico-legal cases. Others that may be here referred to, deal with poisoning with the common elder;[1] a new poison from China termed Wú-Tsau;[2] the use of poisons for the capturing of whales;[3] and with the action of water upon lead.

The last is an elaborate research, begun so early as the year 1829,[4] in continuation of some previous experiments by Guyton-Morveau,[5] when the results obtained were that "all very pure waters, such as distilled water, rain, and melted snow, act upon lead—dissolving a trace of it, and causing the formation of an insoluble carbonate of lead in large quantity. . . . This action is prevented by the existence of neutral salts in solution; so that most terrestrial waters, as they contain saline matter, act feebly, and only in circumstances favourable in other respects. . . . This preventive power depends upon

[1] Cases and Observations in Medical Jurisprudence.—VII. Poisoning with Elder Flowers and Leaves. Edinburgh Medical and Surgical Journal, xxxiii., 1830, p. 73.

[2] On a new Poison from the Interior of China. Edinburgh Medical Journal, iv., 1858-59, p. 869; and Proceedings of the Royal Society of Edinburgh, iv., 1862, p. 167.

[3] On the Capture of Whales by Means of Poison. Edinburgh New Philosophical Journal, xii., 1860, p. 72.

[4] Treatise on Poisons. First edition, 1829, p. 384.

[5] Annales de Chimie, lxx., 1809, p. 197.

the acids of the salts, and not upon their bases; and their energy as preventives, that is, the minuteness of the proportion required to annihilate the action, is in the ratio of the insolubility of the compounds which the acids of the salts are capable of forming with oxide of lead." The occurrence of lead-poisoning in two instances where some of the conditions existed that had thus been indicated as conditions of risk, induced Dr Christison afterwards to institute further experiments. Their main object was to discover means for preventing the solution of lead by waters whose composition did not prevent them from acting upon lead. The laboratory experiments that were made, and afterwards repeated on a large scale, enabled him to recommend that when water "is judged to be of a kind which is likely to attack lead pipes, or when it actually flows through them impregnated with lead, a remedy may be found, either in leaving the pipes full of the water and at rest for three or four months, or by substituting for the water a weak solution of phosphate of soda in the proportion of about a 25,000th part." He likewise points out that "water which contains less than about an 8000th of salts in solution cannot be safely conducted in lead pipes without certain precautions;" that "even this proportion will prove insufficient to prevent corrosion, unless a considerable part of the saline matter consist of carbonates and sulphates, especially the former;" and that "so large a proportion as a 4000th, probably even a larger proportion, will be insufficient, if the salts in solution be in great

measure muriates."[1] As a test easy of application, he recommends that the water should be placed in a glass vessel with a small plate of polished lead; for if the lead be tarnished in a few hours, the water should be regarded as one that cannot safely be conveyed through lead pipes, unless the measures above stated have been first applied.

The greatest number of Dr. Christison's researches in toxicology were, however, closely associated with his work as a medical jurist. In this work, the investigation of cases of poisoning naturally formed a prominent feature, and led to a large number of original observations being suggested to him. Thus, in connection with arsenic-poisoning he published nine papers. The first of these papers[2] treats the subject purely from the standpoint of the chemical analyst. It includes an examination of the changes in the action of the arsenical tests produced by the presence of various compound nutritive fluids; of the value of the plans proposed for decolourising such fluids, with the view of restoring the genuine action of the tests; and of the utility of certain complicated processes for developing the poison, when it is so intimately united with organic substances as not to be discoverable by the common reagents.

The other eight papers are occupied with a descrip-

[1] Transactions of the Royal Society of Edinburgh, xv., 1844, p. 272. Several years afterwards, a paper in support of these statements was communicated to the Royal Society of Edinburgh; Proceedings of the Royal Society of Edinburgh, vii., 1872, p. 699.

[2] On the Detection of Minute Quantities of Arsenic in Mixed Fluids. Edinburgh Medical and Surgical Journal, xxii., 1824, p. 60.

tion of the more important incidents and symptoms in cases where arsenic was given, or had been supposed to be given, with a criminal object; and with details and discussions on antidotes, and on the chemical processes for detecting the poison. In the earliest of the eight papers,[1] published in 1826, he comments in the following severe terms on the way in which medical reports were then drawn up in this country: "They generally contain a meagre statement of facts; are frequently defective, in so far as the whole organs have not been examined; are commonly couched in ambiguous and inelegant language; sometimes intermeddle with the moral proof; very often give nothing more than an opinion, with one or two facts on which it is grounded; and not unfrequently the opinion, in relation to the facts, is an absolute *non sequitur*."

Very much as a result of his own teaching and example, in one of the last of these papers, published in 1856,[2] Dr Christison refers to the medical evidence in the notorious Wooler case in terms of the highest commendation, and characterises it as "the most elaborate, difficult, and conclusive medical investigation and evidence hitherto produced in any criminal trial in Britain." He further states that "the proof of poisoning by arsenic was so perfect, in very nice and difficult circumstances, that even the prisoner's

[1] An Account of several Cases of Poisoning with Arsenic. Edinburgh Medico-Chirurgical Transactions, ii., 1826, p. 273.

[2] Account of a late remarkable Trial for Poisoning with Arsenic. Edinburgh Medical Journal, i., 1855-56, pp. 625, 707, 759.

counsel evidently surrendered that point, without attempt at dispute, from the very beginning. How different was the case, only five-and-twenty years ago, when the main efforts of counsel were invariably directed to deny and disprove the poisoning!"

A trial relative to the effects of a black-ash manufactory on the vegetation in its neighbourhood, in which Dr Christison was called upon to give evidence, led to his investigating, along with Dr Edward Turner, the effects of poisonous gases on vegetables.[1] At the time, no exact data existed on the subject, and this research was therefore of great practical as well as scientific importance. The gases examined were sulphurous acid, hydrochloric acid, chlorine, nitrous acid, sulphuretted hydrogen, ammonia, cyanogen, carbonic oxide, olefiant gas, and nitrous oxide. Some of the results were of a very striking character—sulphurous acid gas and hydrochloric acid gas proving, for example, to be so toxic, that one part of each of them in about 20,000 parts of atmospheric air, destroyed the vitality of the leaves of various small plants, after an exposure of forty-eight hours. It was further observed that a distinction appeared to exist among poisonous gases in relation to vegetable life nearly equivalent to the difference existing between the effects of irritant and narcotic poisons on animals. "The gases which rank as irritants in relation to animals seem to act locally on vegetables, destroying first the parts least plentifully supplied with moisture. The narcotic gases—including under

[1] Edinburgh Medical and Surgical Journal, xxviii., 1827, p. 356.

that term those which act on the nervous system of animals—destroy vegetable life by attacking it throughout the whole plant at once, . . . by some unknown influence on their vitality." The irritants "seem to have upon vegetables none of that sympathetic influence upon general life which in animals follows so remarkably injuries inflicted by the purest local irritants."

Originating also from the imperfect state of the existing knowledge, and from the desire to clear away doubts and obscurities in cases that had occurred in the courts of justice, were the investigations on the hitherto imperfectly recognised poisonous properties of the bark of the laburnum-tree,[1] and on the symptoms and morbid appearances caused by sulphuric acid.[2] An important result of the latter investigation was the introduction of new and improved processes for detecting sulphuric acid in stains in clothing, and in the contents of the stomach.

At the same time, Dr Christison's great reputation as a toxicologist, and his most valuable services to this science, are to be discovered less in the researches which appeared as separate publications, than in his great work on Poisons. In it he incorporated not

[1] Cases and Observations in Medical Jurisprudence.—X. On the Poisonous Properties of the Bark of the Laburnum-tree. Edinburgh Medical and Surgical Journal, lx., 1843, p. 303.

[2] Cases and Observations in Medical Jurisprudence.—VIII. Trial for poisoning with Sulphuric Acid. Opinion deducible from Symptoms and Morbid Appearances. Edinburgh Medical and Surgical Journal, xxxv., 1831, p. 298.

only the results of investigations published separately in the Journals, but also an enormous mass of other original work — consisting of literary research, of elaborate comments on the symptoms and evidence of poisoning, of minute chemical details, and of experimental investigations on physiological action. The first edition of the 'Treatise on Poisons' appeared in 1829, and it was followed by other three editions, the last of which appeared in 1845. I have elsewhere stated that "this treatise has been characterised by the highest legal authority in Scotland as 'a book which was received at once by physicians and jurists and men of science as the most philosophical and complete work that had yet been published on the subject.' It soon gained an authoritative position in the literature of medical jurisprudence, and it still retains the position of a generally recognised standard for reference. . . . It will ever remain a conspicuous evidence of the author's power of systematising existing knowledge, of educing principles from judiciously considered facts, acquired with much industry from a wide range of medical literature and from laborious personal observations, and of stating in terse and lucid language the results of original experiments and the details of chemical processes." [1]

To the end of his life Dr Christison retained a great interest in the subject of toxicology. Although it appears that he never published or delivered any lectures of the now not unusual *popular* kind, he at one time,

[1] Edinburgh Medical Journal, xxvii., 1882, p. 854.

and long after his severance from teaching or other work in medical jurisprudence, contemplated doing so on poisons. Two popular lectures on this subject were prepared by him, the manuscript of which is now before the writer; and it is to be regretted that they were never delivered nor published. The subject is introduced in the following manner: "When the Director of the Museum [the Museum of Science and Art in Edinburgh] was arranging for your behoof the lectures of which you have already heard several courses, I casually observed that I too should have to help the good cause, and might contribute a few lectures on poisoning. What I thus said in jest was accepted by Mr Archer in earnest. On reflection I saw he was right; and the result is, I am now here to tell you what it may be fit for me to say, and for you to hear, on a rather delicate subject to handle in presence of a general audience—the subject of poisons and poisoning.

"What may be fit for you to hear.—For my proposal, you must know, has startled some timorous people, who ask me what you have to do with a knowledge of poisons? What business the unprofessional world at large has with poisons at all, except with those few which a few must use in the way of their business? But one familiar with the whole subject will take a very different view of such questions from what is implied by those who put them in this admonishing shape.

"For poisons may be looked at from several sides. We may consider them as ways for committing murder

and other crimes scarcely less atrocious. This to non-professional eyes is their most obvious aspect. But they may also be regarded as the source of accidents—accidents sudden and formidable, and which can in general be met by measures prompt, decided, and too little known to the non-medical community. They likewise require consideration as articles which may be turned to good account for sundry useful purposes, both on account of their destructive properties, and also apart from these properties altogether. . . . And most of all, notwithstanding the various perils which attend them, they may be kept in view also as a means whose action on the human body, if reduced to its lowest degree, renders them, instead of powerful agents for destroying life, potent medicines for saving it, — converting them from poisons into remedies. . . .

"What, then, is poison? Some will have this settled outright by a definition. But although the most skilful have tried to define a poison, every one has hitherto failed. Their definitions have either been so very wide, so very wrong, or at best clogged with so many conditions, as to be unfit for practical use. Accordingly, when, many years ago, I wrote a big book about poisons, I evaded a definition altogether, plunging into the middle of my subject without that preliminary; for which, although I was rated by some of my critics, I was praised by others—on account of my cunning. Accepting the credit, small as it is, I shall not bring it into risk by attempting to define a poison now. Put before me a substance that

is suspected, together with the circumstances attending and following it—I shall tell without fail whether it is a poison or not. . . . You will also be able to say tolerably well what is and what is not a poison, when I have explained to you the action of poisons, as I shall now proceed to do."

The last sentences that have been written, probably not the concluding sentences, of the second lecture, to some extent indicate the subject-matter of the course, and indicate also the three great classes into which Sir Robert Christison, in his treatise and in all his writings on toxicology, grouped poisons, in accordance with the existing knowledge of their action: "I have now given you a methodical account of all the leading effects of poisons, as hitherto ascertained by practical observation or scientific inquiry. . . . According to the mode in which these effects are grouped, poisons are arranged in three classes. The first are the irritants, whose sole or main action is to produce inflammation or destruction of the animal textures. The second are the nervines (narcotics, as they are often called), which do not injure the textures, but disturb the functions of some part of the nervous system, comprising the brain, spinal marrow, and nerves. The third combine these actions, beginning as irritants and ending as nervines. They are usually called narcotico-irritants; and here the qualifying term narcotic is correct enough, since they, with very few exceptions, cause stupor and insensibility before death."

II.—MATERIA MEDICA.

The first subject of Dr Christison's professorial labours has been characterised as a many-sided one. Materia Medica, to which he devoted himself during a long course of years subsequently to his transference to the Chair of that subject, equally merits this designation. "What," he has asked, "does Materia Medica comprehend? The name has come down to us from Dioscorides unaltered, though far from a happy designation. . . . It comprehends pharmacy, or the obtaining and preparing of medicines, and therapeutics, or their actions and uses; and the latter branch includes the action and uses, not only of medicines proper, but also of qualities of matter (heat, cold, and the several forms of electricity), blood-letting, diet, exercise, climate, and a few other less important branches of regimen. It is a noble subject of instruction, if regarded in this comprehensive shape, full of practical lessons of the highest value, which cannot be given under any other branch of medical instruction, and pregnant with valuable discoveries, so soon as it shall have its share in attracting, as other medical sciences have done before it, the earnest attention of a due multitude of thinking minds and original inquirers."[1] Adopting this definition, and giving also a necessary prominence to special work done in one of the branches of therapeutics, we may conveniently arrange Dr Christison's work and researches in Ma-

[1] Medical Lectures: the Faults with which they are charged, and the Remedy. Edinburgh, 1864.

teria Medica under the subdivisions of pharmacy, therapeutics, and dietetics.

Pharmacy.—Among the earliest of Dr Christison's contributions to pharmacy was his 'Observations on the Adulteration of Drugs.'[1] It was written at a time when drugs were very commonly sold in a state of impurity, arising from fraud or ignorance. It incorporates the results of many chemical analyses of medicines obtained from retail and wholesale dealers throughout the country. A reference is made to the circumstance, that the College of Physicians of Edinburgh were about to introduce, for the first time, into the Pharmacopœia of the College a list of simple characters of the Materia Medica, by which they may be ascertained to be of the requisite degree of purity for medicinal use. Dr Christison proposed, among the measures to be adopted for the prevention and abatement of the practice of adulteration, that the education of chemists and druggists should be improved, and that they should be protected by some of the rights due to a legally constituted society or incorporation. It appears that at the time when this paper was published, while in every other great European kingdom the profession of retail druggist was closely connected with science, governed by statutes, and exercised only by those who had shown their qualifications by education and examination, in Britain alone any man, no matter how uneducated, was allowed to assume the name and occupation of

[1] Appendix to Report of the Royal College of Physicians of Edinburgh on the Adulteration of Drugs. 1838.

chemist and druggist unchallenged. Sixteen years afterwards he was able to address an incorporated Pharmaceutical Society.[1] While recognising the great strides made during this interval in the education and position of the chemist and druggist, he did not fail to urge the adoption of measures for still greater progress, such as the further elevation of the standard of education, the restriction of the occupation of the druggist to pharmacy, and the abandonment of the practice of dealing in quack medicines. Mention may also be made, in this subdivision of Dr Christison's work, of his researches on the composition and physical properties of gamboge,[2] enriched by numerous analyses of specimens from Ceylon and Mysore; on the botanical source and distinctive peculiarities of Turkey or Russian rhubarb-root;[3] and on the influence of various circumstances in modifying the physiological properties of plants.[4] The last research dealt with the influence of season and locality on the development of the active constituents of plants; and it revealed the curious fact that the plants *Cicuta virosa*, *Œnanthe crocata*, and *Æthusa cynapium*, of great toxic activity when grown in certain parts of Britain, are destitute of poisonous properties when grown in other parts.

[1] Address to the North British Branch of the Pharmaceutical Society. Pharmaceutical Journal, xiv., 1854-56, p. 307.

[2] Proceedings of the Royal Society of Edinburgh, vol. i., 1832-44, pp. 123, 151; Pharmaceutical Journal, vi., 1846-47, p. 60.

[3] Transactions and Proceedings of the Botanical Society of Edinburgh, xiii., 1879, p. 403.

[4] Proceedings of the Royal Society of Edinburgh, vol. i., 1832 to 1844, pp. 286, 437, and 453.

An adequate conception of Dr Christison's work and researches in pharmacy cannot, however, be obtained from his published papers merely. For a long series of years he engaged in laboratory investigations on the composition of a great number of medicines, and he made a host of observations in matters bearing upon their pharmacy. Many of these have been recorded in several volumes of manuscript notes that are now before the writer of this chapter, and they were published, in one form or another, in the succeeding editions of his 'Dispensatory.' Many also were incorporated in the 'Edinburgh Pharmacopœia,' the last edition of which was produced by a committee of which he was chairman. He collected specimens of medicinal substances from all parts of the world, which he mounted with singular neatness, and arranged in a methodical manner in the Materia Medica museum of the University, until, under his fostering care, this collection became probably the largest and most representative in Great Britain. His knowledge of pharmacy thus acquired the accuracy and wide extent which proceeds from unusual opportunities and from close and intelligent personal contact; and he became an authority, recognised as the first pharmaceutical chemist in this country, and afterwards justly accorded the responsible position of chairman of the committee of the General Medical Council, charged with the difficult task of compiling the first 'Pharmacopœia of Great Britain and Ireland,' and harmonising into one national codex the pharmacopœias of England, Scotland, and Ireland.

It is impossible, when considering Dr Christison's work in Materia Medica, to overlook the circumstances of his early professional life, and of the training he underwent and the associations to which he was subjected as Professor of Medical Jurisprudence, immediately before he entered upon his long career as an investigator and exponent of Materia Medica. The leanings towards physical science, which seemed to have been natural to him, were confirmed during his studies in Paris. He there became a disciple of the great chemist and pharmacist, Robiquet, for whom he ever retained the highest admiration; and his youthful mind absorbed the enthusiasm of scientific society in Paris, which was inspired by the brilliant discoveries rapidly being announced from the laboratories of Pelletier and Caventou, Vauquelin, Desfosses, Robert, Guibourt, and Bouchardat. A rich vein of scientific discovery in the chemistry of the vegetable kingdom had, indeed, at that time been opened up in France. Incited by the discovery by Derosne of morphine in opium, French chemists were eagerly searching for similar principles in the best known of the active substances in the vegetable Materia Medica. It was the epoch when the existence of solanine, veratrine, delphinine, quinine, cinchonine, gentianine, and others of this class of products was being revealed; and by their revelation a new light was being shed upon the chemistry of organic substances, and a new interest was being given to the investigation of the composition of poisonous and medicinal substances. Dr Christison was deeply impressed by this enthusiasm,

and he entered with ardour into the work. France was, however, at the same time the scene of another great birth of discoveries. Magendie and Claude Bernard were pursuing their less obtrusive investigations in physiology, and were inaugurating what also became an epoch in the physiology of medicinal substances. Their results had not, however, as yet secured the attention that was afterwards given to them, and they were eclipsed by the more brilliant and striking discoveries of the chemists. Orfila, indeed, still remained the prominent figure in the domain of physiology as related to the actions of medicines or poisons. His methods were those of the toxicologist, and Dr Christison, during the period of his occupation in toxicological research, naturally adhered to these methods, as they were undoubtedly the most appropriate for the consideration of the toxicological questions that engaged his attention while he occupied the Chair of Medical Jurisprudence. When he became Professor of Materia Medica, these acquired and natural tendencies were carried by him into his new work. The chemical and other physical characters of the articles of the Materia Medica were those to which he chiefly applied himself. When discussing or investigating physiological actions, it was the general toxic phenomena that he mainly described and searched for: the symptoms produced by poisonous doses, the mode in which death was caused, and the gross morbid appearances that were present after death, rather than the individual perversions that were produced from the normal state, and the local-

isation of the actions in the structures or organs which the drug was capable of influencing in non-toxic as well as in toxic doses. This manner of dealing with medicines was adopted—it is almost needless to observe—with great exactitude and elaboration in his lectures on Materia Medica, and in his treatise on the subject. This work, 'Dr Christison's Dispensatory,' also received from the first an impulse in the directions that have been indicated, from the circumstance that it was to some extent founded upon the 'Edinburgh New Dispensatory' of his predecessor, Dr Andrew Duncan, jun., a work that was published in successive editions between the years 1803 and 1826, and which therefore anticipated, by a considerable interval, the new development of Materia Medica that was destined to occur in Dr Christison's lifetime by the creation of the department of pharmacology.

Evidence of a partiality to physical and toxicological science is clearly shown in 'Dr Christison's Dispensatory.' In the last edition of the work, published in 1848, the first forty-three pages are occupied with a general consideration of pharmaceutical processes, and a large portion of the description of individual substances consists of physical details—of pharmacy and chemical and external characters, of adulterations and of sources of origin. The remainder is occupied with the actions and uses, and comprises, in the case of some of the articles described, a selection of the symptoms produced by them in health, but generally by toxic doses; with the effects observed after their administration in non-toxic doses in con-

ditions of disease more frequently than in conditions of health; and with the applications in the treatment of disease, and the manner of administration. While possessing these characteristics, the work is a remarkable tribute to Dr Christison's erudition, and to his diligence and skill as an investigator, and especially as an investigator in the department of Materia Medica which is now distinguished as that of pharmacognosy. It is distinguished by the judiciousness with which statements have been selected, and by the prevailing evidence of personal knowledge and research. It ably reflects the state of knowledge then existing regarding therapeutics, and while doing so, it illustrates the foundations on which this knowledge rested during the middle of the present century. The science of the action of remedies in conditions of health—the great branch of Materia Medica which now occupies so large a share of attention under the name of pharmacology—had not at that time acquired a sufficient development to materially influence even the traditionary methods of teaching Materia Medica, much less of applying medicaments to the treatment of disease. This science was, however, already asserting its influence; and in several of Dr Christison's special researches on the action of medicinal substances its influence is apparent.

Therapeutics.—One of the earliest of his researches that deal with the physiological action of medicines, was that on hemlock.[1] This research included one of the first, if not the first of the investigations made

[1] Transactions of the Royal Society of Edinburgh, xiii., 1836, p. 383.

in this country on the chemistry of the alkaloids; but its main object was to ascertain the physiological action of hemlock, and of its active principle, the alkaloid conine. Dr Christison demonstrated the identity in action of the two substances, described the phenomena of poisoning in various animals, and, analysing these phenomena by the aid of special experiments, established that they do not directly modify the action of the heart or of the striped muscles, but impair or abolish the functions of the spinal cord, the action being "the counterpart of the action of nux vomica and its alkaloid strychnia." The following instructive experiment is described: "After the breathing had almost ceased in seventeen minutes in a dog poisoned with six drops" (of conine) "through a wound, and when two minutes more would undoubtedly have put an end to life, artificial inflation of the lungs was commenced, and continued with occasional intervals for thirty-five minutes. During all that time the heart beat with its natural force, except when the inflation of the lungs was suspended—the animal remaining all the while in a state of paralytic flaccidity, interrupted only by slight muscular twitches. It appears probable that there is scarcely any limit to the maintenance of the circulation under artificial breathing, except what may arise from the difficulty of imitating exactly the natural breathing, as well as from the several causes which occasion cooling of the body." The great lethal energy of conine is thus illustrated: "Proceeding to inject into the femoral vein of a young dog two grains of the alkaloid exactly

neutralised with thirty drops of diluted muriatic acid, I was prepared for great rapidity of action, and was going on the instant to observe the time by seconds; but on glancing for a moment over the watch at the animal, I observed it was dead. In two seconds, or three at farthest, and without the slightest warning struggle, respiration had ceased, and with it all external signs of life." A considerable portion of this paper is occupied with a discussion of the question: Was hemlock the poison used by the ancient Greeks, and particularly the Athenians, for putting State criminals to death? After considering this question from its philological, botanical, and toxicological aspects, Dr Christison concludes, "Either that the description of Plato—who, it must be remarked, was not present at the death of Socrates, as many imagine—is not a detail of fact, but an embellished narrative written for effect; or that, although we are now acquainted probably with fifty times as many poisons as the ancient Athenians, and with many which are fifty times as active as any in their list, we have lost acquaintance with one with which the ancients were quite familiar, and which differs totally from every known poison in its action." The answer is, in short, a verdict of "not proven."

Another poison employed for State purposes, but by barbarous communities of modern times, also formed the subject of a highly interesting investigation. This was on the ordeal-bean of Old Calabar, in Western Africa. The paper in which the investigation is described was communicated to the Royal

Society of Edinburgh,[1] and its reading produced a sensational effect from the circumstance that a vivid description was given of the symptoms produced on himself after he had swallowed a toxic dose. Having first taken the one-eighth part of a seed, without observing any decided effect, Dr Christison next repeated the experiment with twice that quantity. Giddiness occurred in fifteen minutes; it soon increased, and became associated with a peculiar and indescribable torpidity. Being satisfied that he had taken a dangerous dose of an energetic poison, he swallowed, with characteristic readiness of resource, the shaving-water he had just been using, and thus effectually emptied the stomach. Enough had, however, been already absorbed into the blood to produce alarming symptoms, such as great disorder and weakness of the circulation, extreme muscular prostration, and difficulty of articulation, from which recovery did not take place for several hours. Dr Christison also describes in this paper the effects he had observed when a poisonous dose was given to one of the lower animals; and which, together with the hazardous experiment upon himself, led him to infer that "one principal action of this extraordinary poison, and the immediate cause of death in fatal cases, is depression, ending in paralysis of the heart;" and "that another action is paralysis of the voluntary muscles, attended with suspension of the influence of volition." Subsequent investigations have shown these inferences to be, in the main, correct. It cannot

[1] Monthly Journal of Medicine, xx., 1855, p. 193.

be said that both of them were scientifically demonstrated by the facts he had produced; and it is, therefore, a remarkable evidence of his penetration that he should have been able, from relatively insufficient data, to have arrived at them.

Opium and alcohol were also subjects of special investigation. With both, however, his work was more pharmaceutical and chemical than physiological. He examined and described the composition of specimens of opium from many sources, and made a valuable series of analyses of several wines and alcoholic beverages.[1] His physiological work with opium was chiefly in the direction of investigating its influence upon longevity when it was habitually used as an indulgence;[2] and with alcohol, of determining the symptoms it produces in toxic and medicinal doses, and the conditions that justify or condemn its use as a beverage.[3] The general action and the therapeutics of both substances are, at the same time, fully described in his 'Dispensatory' and 'Treatise on Poisons.'

When discussing the action and uses of alcohol, Dr Christison asserts his adhesion to the doctrine that it is capable of impeding the destructive changes in the tissues of the body. The best known of his researches in which this anti- or para-triptic action is attributed

[1] Silliman's Journal, xxxvii., 1839, p. 363; Proceedings of the Royal Society of Edinburgh, i., 1832-44, p. 249.

[2] Edinburgh Medical and Surgical Journal, xxxvii., 1832, p. 123; Monthly Journal of Medical Science, x., 1850, p. 531.

[3] Medical Times and Gazette, 1878, ii., p. 622. On Some of the Medico-Legal Relations of the Habit of Intemperance. Pamphlet: Edinburgh, 1861.

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to a medicinal substance, is, however, that on cuca or coca. A reference made to the restorative and preservative virtues of this Peruvian leaf in an address delivered to the Botanical Society of Edinburgh in 1875,[1] attracted much attention, and induced him afterwards to publish his observations, in greater detail, in the 'British Medical Journal.'[2] After summarising, in the latter paper, the statements hitherto published about it by the historians of Peru, and by travellers in that country, and quoting instances that appear to show that it possesses a wonderful power of supporting the strength under prolonged fatigue without food, he proceeds to narrate a number of observations made upon students of the class of Materia Medica and upon himself, for the purpose of testing this reputation. The observations upon himself were made in 1875, and they furnish a remarkable evidence of Dr Christison's well-known bodily strength and endurance, as he was then a veteran in his seventy-eighth year. To produce the conditions necessary for the observations, he walked in one day fifteen miles in four stages, and in another fifteen miles in three stages, at four-mile pace; and on two occasions he ascended Ben Voirlich, from a point about 2900 feet below its summit. During these walks and excursions, coca in appropriate quantities was chewed, and its influence on fatigue was noted, as well as the conditions of the pulse and appetite, and

[1] Transactions and Proceedings of the Botanical Society of Edinburgh, xii., 1875, p. 478.

[2] Observations on the Effects of Cuca or Coca, the leaves of Erythroxylon coca. British Medical Journal, i., 1876, p. 527.

of several of the secretions. He thus summarises his observations: "The chewing of cuca removes extreme fatigue, and prevents it. Hunger and thirst are suspended; but eventually appetite and digestion are unaffected. . . . From sixty to ninety grains are sufficient for one trial; but some persons either require more or are constitutionally proof against its restorative action. It has no effect upon the mental faculties, so far as my own trials and other observations go, except liberating them from the dulness and drowsiness which follow great bodily fatigue. I do not yet know its effect on mental fatigue purely. As to the several functions, it reduces the effect of severe protracted exercise in accelerating the pulse. It does not diminish the perspiration, so far as I can judge. It probably lessens the hourly secretion of urine-solids."

The above papers chiefly relate to the physiological effects of active substances, and only incidentally to their therapeutical applications. Notwithstanding his close association with the subject of the uses of remedies in disease, Sir Robert Christison has published but few original observations on this subject apart from those that have been incorporated into his 'Dispensatory.' The only therapeutic paper that the writer of this chapter has knowledge of, indeed, is that on digitaline,[1] an active principle obtained from foxglove. Dr Christison has the merit of having first, in this country, drawn attention to the useful properties of this active principle, and especially to its great

[1] Monthly Journal of Medicine, xx., 1855, p. 1.

value as a diuretic. His paper is entitled, "Notes and Observations in Medical Practice," and the title probably indicates an intention to prepare a series of observations in practical therapeutics, on the plan of the series of "Cases and Observations in Medical Jurisprudence." He has himself, indeed, announced that at one period in his career he had formed the intention of devoting the main portion of his time to the study of the effects of remedies upon disease.[1] Had this intention been fully carried out, therapeutics would, in all probability, have received an important impetus in its development. His conception of the direction in which progress is to be best attained may be inferred from his statement that "the therapeutical inquirer must know, in the first instance, the effects produced by a medicinal substance on all the organs and functions of the healthy body."[2] The earnestness with which he would have engaged in the study may be judged from the opinions he has expressed in the following sentences: "Looking to the grand object of all instruction, the practice of our art, only two great branches of medicine can be recognised—the knowledge of diseases and the knowledge of remedies. I shall not pretend to settle the question which branch is the more important of the two. But assuredly, the former would be of miserably little use without the latter; so that, in one point of view, a knowledge of remedies is the more material of the two."[3]

[1] Report of Proceedings at the Public Dinner in honour of Sir Robert Christison, Bart. Edinburgh, 1872, p. 25.

[2] Address in Therapeutics. British Medical Journal, 1858, p. 671.

[3] Medical Lectures, &c. Edinburgh, 1864, p. 19.

Dietetics.—Of the other branches of Materia Medica included in Dr Christison's definition of the subject,[1] dietetics received from him so much attention, and its principles were so materially advanced by his inquiries, that a brief reference to his work cannot be here omitted. The importance attached by him to this subject may be estimated from the circumstance that, in his course of lectures on Materia Medica, he succeeded in giving complete and thorough instruction in it, notwithstanding the difficulty of doing so and at the same time overtaking the mass of facts that required attention in connection with medicines proper. For these lectures he compiled, partly from existing data and partly from his own chemical analyses, a valuable series of tables[2] showing the nutritive value of the more important food-substances, and of a large number of dietaries in use among labourers in several parts of the country, and in public institutions. As with so many other subjects related to his profession, he had gained a right to speak with authority on this one also by his original investigations.

The most important of these investigations were made during the examination of the causes of epidemics of scurvy among the prisoners at Perth Penitentiary, and among railway and other labourers employed in Edinburgh and its neighbourhood.[3] Dr Christison's examination of the circumstances of these epidemics led him to conclude that among those who

[1] Page 170.

[2] Tables of Nutriment in various Dietaries. Edinburgh, 1854.

[3] Monthly Journal of Medical Science, vii., 1847, p. 873, and viii., 1848, p. 1.

juice,[1] as he there introduced to the notice of his professional brethren the advantages of a more concentrated fluid extract of meat than that generally used at the time in the form of beef-tea. This paper includes an analysis of the preserved juice of meat manufactured by Mr Gillon, of Leith. It anticipates the discussions, and, on the whole, the now prevalent views, on the nutritious value of preparations of this class, by rejecting the supposition that they act only as nutriments, and by adopting the view that they possess the singular property of diminishing the waste of the tissues of the body, and of thus acting as paratriptics. He does not, however, restrict their value to this action, but also assigns to them the property of aiding the digestion of certain principles derived from the organic kingdom, and especially the albuminous principle, gelatine.

A research in dietetics of considerable interest was also that on the composition of the flesh of the salmon in the "clean" and "foul" condition,[2] in which he shows that the kelt or "foul" fish is a much more watery food than the "clean" salmon, and that this is owing less to a deficiency in nitrogenous substances than to an enormous deficiency of oil or fat, which is reduced to almost a sixteenth part only of its amount in a clean fish.

[1] Notes and Observations in Medical Practice. Monthly Journal of Medicine, xx., 1855, p. 6.

[2] Proceedings of the Royal Society of Edinburgh, vii., 1872, p. 694.

III.—GENERAL SCIENCE.

Not contented with the field for scientific industry that was presented to him in connection with the subjects with which he was, as it were, officially connected, Dr Christison extended his researches into many other departments of exact knowledge.

Botany.—He was an accomplished botanist; and his original contributions to this science were both numerous and important. Some of them have already been referred to in the preceding pages. There remain others, which it is sufficient merely to mention, such as the papers on the Craigleith fossil trees,[1] and on the pinaceous fossil in Redhall quarry,[2] both enriched with details of chemical analyses; on the effects of lightning upon trees;[3] and a series of papers representing investigations conducted over several years, and associated with the work of the last years of his life, on the exact measurement of trees.[4]

Chemistry.—In chemical science, apart from his professional occupations, Dr Christison published, in 1832, a description of the petroleum of Rangoon.[5] In the course of his chemical investigation of this

[1] Transactions of the Royal Society of Edinburgh, xxviii., 1874, p. 203.

[2] Transactions and Proceedings of the Botanical Society of Edinburgh, xii., 1874, p. 167.

[3] Transactions and Proceedings of the Botanical Society of Edinburgh, xii., 1876, p. 497; and xiii., Appendix, p. lvii.

[4] Transactions and Proceedings of the Botanical Society of Edinburgh, xiii., 1878, p. 217; 1879, pp. 394 and 410. (See also "List of Writings" at the end of this volume.)

[5] Transactions of the Royal Society of Edinburgh, xiii., 1836, p. 118.

substance, he made the independent discovery of the now widely known hydrocarbon, paraffin, described by him under the name of petroline—which, however, he afterwards found had been previously obtained from coal-tar by Reichenbach.

He extended his researches also into the field of physiological and pathological chemistry, and here investigated the cause of the milky or whey-like appearances sometimes presented by the blood;[1] the mutual action of blood and atmospheric air;[2] and the composition of the blood in various diseases.[3] In the first paper, he concludes, from many chemical analyses, that the milkiness is caused by fat absorbed from the body, and contained in the blood in the form of emulsion. In the second paper, he shows how important is the influence of the colouring matter of the blood upon its oxygenation; points out that in some diseases, illustrative examples of which are given, this colouring matter is deficient; and indicates his appreciation of the importance of investigating the precise relationship between the deficiency of the colouring matter and other principles of the blood, and the production and progress of diseases. The third investigation was, in a sense, a continuation of the second. It comprises a large number of chemical analyses of the blood in conditions of disease; but while, apparently, it was never published in a complete form, many of the facts were

[1] Edinburgh Medical and Surgical Journal, xxxiii., 1830, p. 274.
[2] Edinburgh Medical and Surgical Journal, xxxv., 1831, p. 94.
[3] Unpublished manuscript, 1838.

incorporated in the several papers on diseases of the kidneys, which constituted so important a part of Dr Christison's contributions to medicine.

Physics,[1] *Mineralogy*,[2] *Hydrography*,[3] and *Archæology*,[4] all likewise engaged Dr Christison's attention, and afforded subjects for research. In a few instances only, his work in general science was related to the professional and professorial employments he so ardently engaged in. It constituted, for the most part, his amusement and recreation when advancing years and declining strength had naturally diminished his capability to engage in the exacting labours of his previous life, but had still left him able to find enjoyment and relaxation in the search for knowledge in other departments of science.

[1] On the Construction of Oil and Coal-Gas Burners. Edinburgh New Philosophical Journal, xiii., 1825, p. 1.

[2] On the Application of the Rocks of Ben Nevis to Ornamental Art. Proceedings of the Royal Society of Edinburgh, xi., 1881, p. 365.

[3] Observations on the Fresh Waters of Scotland. Proceedings of the Royal Society of Edinburgh, vii., 1871, p. 547; and viii. 1872, p. 25.

[4] Account of an Ancient Image of Oak. Proceedings of the Society of Antiquaries of Scotland, new series, iii., 1880-81, p. 158.

CHAPTER IX.

MINOR SCIENTIFIC OBSERVATIONS.

WOOLER POISONING CASE — HARD WINTERS — PROGNOSTICS FROM AURORA BOREALIS, ETC.—MIRAGE—GREAT STORM, 1868—SUN-HEAT IN HAZE—WATER ANALYSIS—ST MARY'S LOCH WATER SCHEME—ACTION OF WATER ON LEAD—TEMPERATURE OF DEEP FRESH-WATER LOCHS—SIMPLE ANALYSIS OF WATER—FILTRATION OF PEATY WATER—CAPTURE OF WHALES BY POISONING—RATS.

In this and the subsequent chapter we have reserved, from Professor Thomas R. Fraser's account of Sir Robert's scientific work, some opinions on scientific questions of public interest, and some passages in letters to his sons, descriptive of his minor and more popular scientific observations, such as seem more suited to the taste of the general reader than the more important, but also more severe, subject-matter of chapter vii.

WOOLER POISONING CASE.[1]

"*To D. C.*, 31*st Dec.* 1855.—I had a famous adventure about a fortnight ago, having been summoned to

[1] This was known as the Burdon poisoning case. Joseph Smith

give evidence in the trial of Wooler at Durham for murder by poison, as I had got involved in the case unwarily by giving some advice to the medical men concerned, and detecting arsenic for them in circumstances that proved material for the prosecution. I was two entire days in Court, and returned more thoroughly knocked up than I remember to have been since the trial of Burke and Hare, when I was twenty-four continuous hours a hearer or actor in the proceedings. I observed nothing better and several things worse (by admission, too, of the prosecuting counsel, Mr James) in the English than in the Scottish procedure in criminal trials. The liberty, or rather licence, allowed to English counsel in superfluously abusing respectable witnesses, without check or subsequent rectification by the judge, is fearful—a disgrace to the English Bar, and of no use whatever towards the administration of justice. Serjeant Wilkins is a strong-built, big-voiced, braggadocio-looking man,—the type, I should have thought, of Dickens's Serjeant Buzfuz. But his antitype, it seems, was Serjeant B——. Serjeant Wilkins made a pretty mash of one of the principal medical witnesses, a kind-looking, good-natured, nervous, well-informed gentleman, who had been studying for his first appearance on the medico-legal stage, but had omitted to include a few lessons in the noble art

Wooler was tried for the murder of his wife. Arsenic was found in the body, and, according to the medical evidence, it had been administered in small doses in solution. Mr Wooler's counsel admitted poisoning by arsenic, but there was no evidence of motive or of administration by the accused, and he was acquitted.

of self-defence against impudence and perversion of truth. The Serjeant was less successful against a clever odd-mannered bald-head, who elongated himself like a worm as he spoke, sometimes over one corner of the witness-box, sometimes over the other, and who put out and drew back his statements like his body, in quite a baffling fashion. He was even less prosperous with a little fair-haired, small-faced, spectacled, quiet, boyish-looking young fellow of great intelligence, who on one occasion did the next thing to giving the Serjeant the lie, and was found from the judge's notes to be right, to the delight and applause of the audience.

"The knowing Serjeant, however, turned the applause to good account in his speech afterwards, by assuming it to have been malignant prejudice of the audience against his client, instead of delight at the defeat of a bully by an opponent not half his size.

"He did not try it on with me: perhaps it was no object to dispute my evidence, but others thought that he did not augur much from my monosyllabic answers and the double D of my voice, which went beyond him."

The importance of this subject warrants the introduction of the following extract from Sir Robert's published paper on the Wooler case :—

Edinburgh Medical Journal, Feb. 1856.—"It remains for me to notice only one other incident of the proceedings in the trial of Mr Wooler. It is the most disagreeable of all to approach. But a notice of it is

a plain duty, owing to his brethren by every medical man who publicly takes cognisance of the case.

"The counsel for the prisoner thought fit, in the exercise of his vocation, to assail the three principal medical witnesses,—Dr Haselwood, Dr Jackson, and Mr Hengel,—with a licence and acerbity unparalleled on any similar occasion in a British court of law. His address to the jury seldom approached the evidence, or prior conduct, of these gentlemen without some word of contumely. One of them is sneered at as 'childish, silly,' and is charged with having 'published what he knew to be a falsehood.' Another was guilty of 'hypocrisy,'—of having 'deceived, and wilfully deceived.' The conduct of all three was 'disgusting to every one acquainted with the medical profession.' And in a climax, the counsel declares their conduct 'infamous,—I use it,' adds he, 'and repeat it, the infamous conduct of the medical men,'—'infamous in the extreme'—so much so, that 'but for that infamous conduct the poor woman would now be alive; but for that infamous conduct, this trial would never have been called for;' and nevertheless, all this tirade was a pure exercise of the imagination.

"I am not unaware—and medical men generally, who may all be exposed to be similarly insulted, ought to be aware—that one of the pleasant fictions of the law—in this case made a reality—is that unlimited liberty must of necessity be allowed to the prisoner's counsel in the treatment of the witnesses for the prosecution: no matter how manifest a scoundrel he

may have for his client, or how estimable a member of society for a witness, he may, in his cross-examination and address to the jury, make the two exchange characters to the best of his ability and the utmost of his liking. We are called on, it seems, not to feel sore when we encounter such usage; and assuredly there would be great danger in resenting it. Even should the counsel enforce his denunciations by protesting his own belief in the justice of them—and Mr Wooler's counsel approached very near this acme—no fault must be found. We are expected to look upon our tormentor as an actor merely—and possibly to applaud him as such, if successful, with the best grace we can command.

"But this liberty of speech, unless exercised with discretion and due forbearance, degenerates into licence. Every dispassionate person will feel that it was so abused on the present occasion. Every one who studies the whole case attentively must come to the conclusion that the severe censure which was passed on the medical witnesses by the prisoner's counsel on Mr Wooler's trial, was alike uncalled for by their conduct while attending at the bed of sickness and death, by the evidence which they gave at the trial, by the exigencies of the counsel's own position, or by any probability of an influence on the minds of the jury. Mr Serjeant Wilkins's client was safe enough without the infliction of such injury on defenceless, upright, honourable men; nor is it easy to see what other justifiable object was to be attained by it.

"The medical profession will look to the Bench for protection against superfluous, undeserved, unmeasured abuse. I feel certain they will not look in vain in Scotland. In England the case is said to be different. Certainly, on the trial of Mr Wooler, the judge, as reported, very feebly repelled the unwarrantable assault of the prisoner's counsel. Courts, however, ought to weigh well the consequence. For it is not to be supposed that medical men, if not protected in the discharge of a duty at all times arduous, anxious, and disagreeable, will not do all in their power to circumscribe their sphere, and even avoid all participation in a department of their profession which, in any circumstances, presents attractions to few, and is repulsive to many."

In his leisure hours, Sir Robert sought relaxation from the strain of everyday occupations by diverting his thoughts to new and voluntary lines of investigation, rather than by divorcing them entirely from science. For the same reason he welcomed the consultations on practical scientific matters which began to pour in upon him, when in the full tide of his prosperity, notwithstanding the serious inroads which they made upon his time.

Among these subsidiary occupations there was none which gave him more pleasure than those connected with meteorology. His observations were perhaps rather of a popular than a purely scientific kind, but they were always directed to some practical end. Thus, as will be seen from the following

extracts, he gave himself particularly to the study of weather prognostics from visible signs in the sky and clouds—a subject surely worthy of a more systematic investigation than it has yet received. With these original observations we give some descriptions of remarkable seasons, which, coming from so accurate an observer, seem worthy of preservation.

HARD WINTERS.

"To Mrs A. C. 2*d January* 1861.

"Fourteen days ago winter set in with bitterness. First, there was a fall of a full uniform foot of snow in fourteen hours. After four days there followed such a frost as I never knew; the thermometer during the night of Monday, 24th December, having sunk to −4° Fahr. at certain places in the immediate neighbourhood of the town, and to −7°, and even −13°, in the upland country south and west of it. For four days more we had it only a few degrees higher. Then a gentle thaw set in for three days more, and to-day we have frost again, but in a mild way. Mr M'Nab's face at the Botanic Garden is of preternatural length, and Dr Balfour's back is bent like an old man's, in gloomy anticipation of havoc among their evergreens, of which they count on losing one-half.

"For some years our winters have been becoming harder; and the wise, or those who think themselves so, are inventing theories to account for the change, and to help them to another theory, that of gradual degeneration of our climate. But I am not yet a

convert to the theory. For I can recollect harder winters than this almost regularly from 1810 to 1820. In 1822-3, nine days' mails were due from London; and in 1827 I passed on the outside of a public coach through a snow-cut beyond Newington, so deep that my head, ten feet from the ground, was just on a level with the heaped-up snow on each side."

WEATHER PROGNOSTICS.

Aurora Borealis. Journal.—"*April* 1862.—The snowstorm of Sunday afternoon, the 2d of March, which took most people by surprise, and which was the harbinger of continual broken and harsh weather for five days, has recalled my recollection to a prognostic of storms which held good on that occasion, and which, although it might often prove of great practical value, appears to be scarcely known either to scientific or ordinary observers.

"Every one is aware that a great display of aurora borealis is regarded as commonly the forerunner of broken weather. But the aurora will furnish in some circumstances a far more precise and important prognostic than this. For, if I am not mistaken, it will be found an invariable rule that the first great aurora, in a tract of continuous fine weather, indicates a heavy storm of rain, beginning, however, not till the early part of the afternoon of the second day afterwards. Especially does this rule seem to apply to the autumn season. For I have never known an exception to it, when my own attention, or that of the

public, has been drawn to a splendid aurora, the first of the season, occurring in September, after long-continued, unbroken, fine harvest weather.

"It must be fully thirty years since my own attention was turned to this prognostic. I have repeatedly mentioned it to scientific friends and likewise to agriculturists and others; but not one had noticed it: while all of them whom I have met since have been able to confirm my observation by their own. There is good ground, therefore, for supposing that this prognostic is, at all events, little known; and, nevertheless, how important is it for all agriculturists to know that, at a most important season of the year for them and for the country, it may be foretold that a most damaging event will interrupt their harvest labours, but that they are to have six-and-thirty hours to prepare for it!

"In proportion to the practical value of the observation is the necessity of illustrating it by facts. I shall therefore mention one or two incidents which have served to fix it in my own memory.

"In the year 1834, the British Association met for the first time at Edinburgh, on Monday, the 8th of September. On the previous Saturday evening there was one of the most magnificent auroras, in point of extent, brightness, and variety of colours, that I have ever witnessed. Next morning, at breakfast, at the house of my late colleague, Dr Alison, his guest, Professor Sedgwick, expressed the obligation of the southern members to their friends in the north for bespeaking so magnificent

a display of a phenomenon which they never had an opportunity of beholding in splendour in lower latitudes at home; and he copiously described, in his own glowing language, the vast sweep, shifting flashes, and varying lines of the opportune aurora. I felt sorry to trouble his satisfaction, but begged to show him the other side of the picture, and assured him that at, or soon after, the Association reception-hour of noon on Monday, we should inaugurate the meeting in the beginning of a great storm of three days' rain. He objected that nothing could be finer or steadier-looking than the calm, clear, sunshiny air and sky of that Sunday morning. It was indeed a choice September day. But before then, and also since, I have observed that such is the general rule for the day between that of the aurora and that of the outbreak of the storm. The fine weather continued all the Sunday, all the succeeding night, and all next morning. The Professor happened to meet me early on the Monday morning, and was rather inclined to taunt me with its beauty; but about eleven the sky began to put on a very dubious aspect. In half an hour more a bank of cloud, dense below, and losing itself gradually upwards, had formed in the north-east. As I walked to the reception-room a little before twelve, the wind veered from west to easterly, the rain began to fall in sparse drops, and in half an hour more it poured down in torrents. Thus was ushered in, as I believe, the heaviest, most incessant, and most enduring rainfall that had occurred for at least thirty years in this quarter. With scarcely

either intermission or relaxation, it lasted till Wednesday about one in the afternoon, when it was gradually succeeded by a renewal of fine weather.

"A few years afterwards, while visiting in September a Dumfriesshire friend, who farms a portion of his estate as a study and amusement, we were returning late from a distant dinner-party, when we were greeted on the way home by a magnificent aurora. The weather had long been extremely beautiful, and favourable for the operations of a rather late harvest. I therefore told my prognostic, relating the previous incident as an illustration of its accuracy. My friend was good enough to say that, as he confided in my observation, he should apply it next morning.

"Next morning, at breakfast-time, the farm-steward arrived, as was his wont, for the day's orders. In reply to a question what his people were doing, he said the weather was so fine and steady, that he was thinking to take them from the 'stooks' to repair a river embankment. 'Do no such thing,' was the rejoinder; 'finish the leading of your corn: there is to be a great storm.' 'Weel, sir,' observed the steward, 'I'm sure neither you nor me ever saw a brawer day than this in Nithsdale.' 'Never mind that,' replied his master; 'lead your corn and thatch your stacks—you have got all this day to do it. To-morrow you may do what you like; the storm will set in to-morrow forenoon.'

"At breakfast-time next day the steward reappeared for his orders in a most lovely autumn morning, to which he did not fail to call our particular

attention. His master was staggered—till I reminded him that Nithsdale storms usually set in not till eleven in the forenoon. At half-past ten the south and south-west began to put on an ominous aspect; at eleven, he recognised every indication of a serious storm;. and it was resolved that we should go to the field and see what the steward thought of the matter now. Before we reached him, drops of rain began to fall, and the atmosphere had a most lowering appearance. The steward looked steadily aside at his workpeople, and was evidently shy of opening the conversation. But when appealed to for his opinion by his master, he said, with great emphasis, 'Weel, sir, it's jist looking awfu'. But how ye cam to ken o't yesterday morning is mair than I can tell.' A great storm and flood ensued, and lasted for two days.

"The steward was told the prognostic, and afterwards found it to hold good. Two or three years later, at the same season, and in as fine weather, a splendid aurora again foretold to my friend and myself a coming storm in Nithsdale. But, to my chagrin, it set in next morning at eleven, too soon by four-and-twenty hours. To our further discomfiture, it came to an end at four o'clock, and sunshine followed in the evening. Next day broke with brightness and fair promises. At nine, therefore, when the farm-steward made his daily call, we complained to him of the breach of faith on the part of the aurora two evenings before. But he comforted us with the news that we must have overlooked a little aurora the evening before that, and advised us not to undertake

any long excursion until we should see what another eleven o'clock might do for our aurora. At eleven the foreseen storm burst forth in good earnest, and heavy rain fell without a break all that day, all next day, and during part of the third.

"I have had many opportunities of applying this prognostic, and have never found it to fail. Several friends, to whom I have mentioned it, have since equally remarked a constant observance of the rule. I confine the prognostic, however, for the present, to the season and the other conditions stated above. Like other prognostications of weather, this one is of little use when the weather is already broken, irregular, and alternately fine and coarse. Nevertheless, it may be well to remember that in such weather auroras, at least in the first half of winter, are very common, and may prove to be truly prognostic under close observation.

"As to what is the fact at other seasons of the year besides the autumn, my first experience was the late storm of March 2d. Two days before, when returning about ten in the evening with Professor Aytoun and Dr John Brown from dining in the country near Duddingston, my attention was drawn to a bright aurora in the north and north-west. There had been for three weeks fine, open, warm, and tolerably clear weather — very remarkable weather for a Scotch February. Our conversation naturally turned upon the prognostic, and I was much interested in watching the result. March 1st was a fine day, much like what went

before. Sunday morning was, if possible, even finer. Twelve, one, two o'clock came without change. But between two and three the atmosphere became thick from north-east to north-west; rain-drops followed, and at half-past three a furious north-west snowstorm, gradually passing round to the north-east, took all the congregations of Edinburgh by surprise at the close of church service at four o'clock. This was the commencement of tempestuous and alternating frosty, rainy, and snowy weather for the next five days.

"*Nov.* 9, 1866.—An auroral veil at seven P.M. in the north-west after a very fine day—low, however, and not spreading at ten upwards in streamers or otherwise—perhaps no prognostic. 10th very fine again; 11th still very fine in the morning, but after mid-day breezy and gusty from south-west, and at three began a succession of black rain-clouds and heavy gales with them. Is that what the little aurora of the evening of the 9th portended? Calm in the evening.

"*April* 30, 1868.—After ten days of very broken, changeable weather, there unexpectedly arose, on the evening of the 27th, a most magnificent aurora borealis, extending more or less over the whole firmament, and so brilliant that a very bright half-moon did not in the least pale its light. I was much interested in the result, and had my hopes that an aurora during broken weather might be the prognostic—not of storm, as in the autumn after a long tract of fine weather—but of steady, bright sunshine and drought. However, about midnight on Wednesday—thus not

till full twenty-four hours after the aurora, and following a descent of 0.30 of the barometer during that interval—there arose a furious storm of rain and wind from the south-west, not from the north-east as in autumn; the rain fell off gradually after six A.M., but the gale continued during most of Wednesday, and about two o'clock blew so hard as to throw down trees. I therefore came to the conclusion that a very great aurora at any season of the year, and in any circumstances of previous weather, prognosticates a storm—to begin, however, not till at least twenty-four hours afterwards.

"*May* 17, 1869.—On the evening of the 13th there was a magnificent coloured aurora, extending principally from the zenith to the southern horizon—a very unusual locality. Had the autumnal rule been followed, there ought to have been a great storm of wind and rain, beginning on the forenoon of Saturday the 15th; but, on the contrary, the weather has continued cold and clear—with northerly breezes and no rain—unchanged since the 2d of the month; so here has been an aurora not even indicative of broken weather. My son John suggests because it was a southern one, not a true aurora in the north.

"*August* 20, 1872.—On the 14th there was a great aurora borealis; the 15th was fine, the morning of the 16th also fair: at 11.15, however, a north-east gale set in with heavy rain, and the rain continued all that day, and with intervals all next day, the 17th. The two following days were fine, as this morning is also."

Red Sunrise. "*August* 11, 1879.—Aurora ushered in the chariot of the sun draped in bright red. Such a sky is held to predict rain, according to the old proverb, 'An evening grey and a morning red, put on your cap to keep dry your head.' But on this occasion it failed, as indeed I have had occasion to notice several times before."

Winter Prognostic. "*Feb.* 1, 1874.—In the end of October last, I prognosticated to several of my friends that we were to have an open winter till the last week of January, at least. The last week of January is come and gone, and the weather has continued open till now.

"My ground of prognostication is a period of from four to seven days of continuous sharp frost in the last week of October, or first week of November. For, in the course of at least forty years, I have not met with an exception to the rule, that the frost then ceases, and the weather continues open as far on through the winter as the last week of January. My observation does not carry me further. Sometimes there is no alteration for the rest of the winter; but more generally I have seen goodly hard weather then set in, and continue for six weeks, or even longer—much too far into our proper spring season, the middle of March.

"In the present instance, October having, contrary to wont, been very rainy, boisterous, and chill for three weeks, and sharp frost, with calm dry weather, having then displaced wet and wind, the weather-wise took everywhere to shaking their heads,

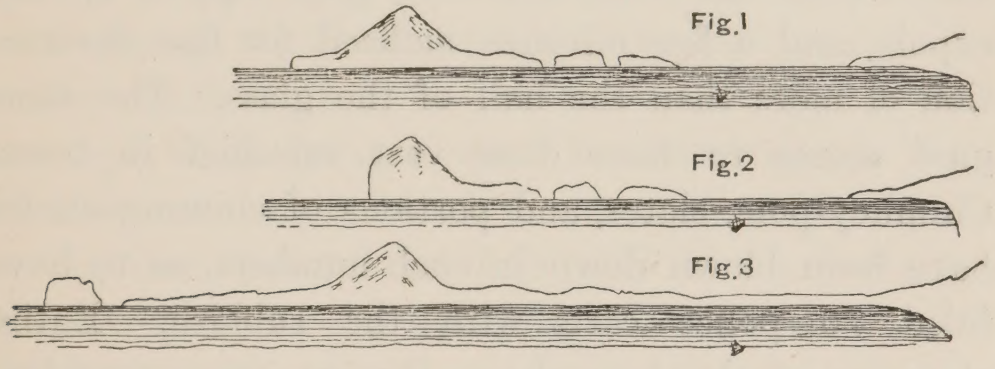
and foretelling a hard—an exceeding hard winter. But I pooh-poohed them all, and confidently assured them of an open winter till the last week of January. Only one of these, however, appears to have recollected my prophecy—viz., Mr Pearson, the accountant, who in a month began weekly to recall it to me, with a nod of approbation, as we passed each other in the street."

Prognostic from Mist. "*Ballachulish, Aug.* 15, 1881.—Studying with care the morning prognostics, I infer that when the early morning hill-top mists clear off gradually, without spurts of descent, or a general hazy atmosphere, so that about nine the whole landscape clears, the weather will be fine. But when the early morning, however fine, is succeeded about six A.M. by alternating clear and hazy atmosphere, by dense mists alternately raising and pushing down their edges, or by fleecy mists stealing along the middle of the mountain-slopes, rain soon follows, and generally a S.W. or S.E. gale in the afternoon."

MIRAGE.

Journal. "*Oct.* 4, 1867.—Starting on a professional visit to Fife, I was introduced to the Bishop of Rhode Island, who was going in the same direction. In crossing the Firth, we met with the following remarkable instance of mirage. The long spit of land extending north from North Berwick Law was cut off abruptly as if by a small precipice, very near the Law. Two little gaps, producing, as it were, two small islands, were seen a little south of the Law; and, still further south, the

whole low neck of land stretching eastward from Aberlady Bay had disappeared, so that there seemed to be a strait between the land on which the Law stood and that which begins to rise near Aberlady towards the Garleton hills. This (fig. 1) was the apparent formation of the land when our steamer was half-way across. As we advanced northwards, the little remaining northern tongue of land progressively disappeared, and then about half of the northern part of the cone of North Berwick Law, until at last the hill presented the appearance of a sea precipice (fig. 2). In a crowded



vessel, not another soul seemed to notice these strange phenomena—there are so many people who see, and so few who observe. On pointing them out to the Bishop, he would scarcely believe me, but insisted that there was a strait towards which, as evidence of its existence, he saw a vessel in the distance shaping its course for a passage through it. But when, on landing, and ascending a little way above Burntisland, he saw the whole promontory as it really is (fig. 3), with the Bass Rock a little way north of it, there was no resisting the evidence of his own senses. The morning was cold, and the wind blew pretty fresh from the north-west."

GREAT STORM.

Journal. "*Jan.* 25, 1868.—Yesterday there was such a storm as never blew in Edinburgh in my time. In the morning, when I walked over to the College, it blew a strong, frosty gale, very provocative of a 4½-mile pace. About mid-day the wind rose to a storm from the south. At one o'clock it increased to a tearing, roaring blast, more like an Asiatic typhoon or a West India hurricane than a Scottish storm. As I was leaving the house to see a gentleman in the Windsor Hotel over the way, a frantic gust ripped up my cupola, and a few minutes sufficed for the destruction of more than the half of the glass. The same gust seems to have done vast mischief in town. Chimney-pots, slates, and portions of chimney-stacks have been blown down in such numbers, as to have filled 70 police-carts with the rubbish. Entire chimney-stacks have been thrown over, tumbling upon and often through the roofs; and in the uppermost house of the west side of Duke Street a chimney gable-end, 14 feet high, was snapped across at the root, falling through five floors in succession, and killing four people. Two other persons were immediately disentangled, with little injury, one of whom came down from the top storey! The other, a solicitor's clerk, was so little hurt that, after being disengaged, he set to with the people to relieve his companion from the ruins. At half-past one my coachman came, bewildered, to say that it was impossible to bring out the carriage; that a great number of cabs had been

blown over; that the rest had been withdrawn from the streets; and that it was quite unsafe for me to go out on foot, as strong men were obliged to come to anchor by a railing; and the streets, besides being struck everywhere with chimney-pots, were full of slates, skimming through the air suitably for effecting decapitation. The newspapers this morning are full of penny-a-linings on the subject, but have missed two startling incidents. Forty feet of the heavy stone balustrade which finishes the inside face of the College above the Natural Philosophy class-room have been driven inward upon the roof, and many of the balusters through it, after standing forty-five years. The oddest incident I have yet heard of befell Syme's carriage, while going against the hurricane, in Hanover Street. A gentleman in the carriage with Syme, seeing one, two, three, four cabs blown over in a twinkling, opened the carriage-door to get out—when, incontinently, away went the door out of sight, and bodily! In a short time, however, a man came up with it, the panel not scratched, and the glass, which had been up, unbroken! Numbers of people have been thrown down, or dashed against walls and sharply hurt, but none seriously."

SUNHEAT IN HAZE.

Journal. "*Aug.* 8, 1870.—The heat in the Lawsons' stove-house, where the ipecacuan cuttings for India are, was most intense; but the overseer assured me there was no artificial heat, and that nothing but the sun had produced such a temperature.

Nevertheless the atmosphere was thick, as for some days past, with an easterly wind and general slight haze, sufficient to render the sun's place in the heavens barely discernible, and during most of the day absolutely unrecognisable. I was not previously aware that in such circumstances the sun could exert so great a heating effect on the earth's surface; but I now clearly understand what was previously a puzzle to me, that during our lately frequent days of thin haze, grey firmament, and absent sun, I felt very hot in exposed Princes Street, as if the sun did shine upon me, while it felt greatly cooler in the south or shady side of George Street, though there was not a visible shadow of the houses thrown upon the street."

WATER ANALYSIS.

The subject of water analysis was thoroughly worked out by Sir Robert at an early part of his career. It was not till 1871, when the scheme for supplying Edinburgh with water from St Mary's Loch was introduced, that his attention was again called to the subject. The interest which he took in it led him not only to make a thorough investigation into the merits of the scheme, but to originate experiments on the filtration of water, and on the composition and temperature of fresh-water lochs at great depths, which formed the subjects of scientific papers.

We have thought it desirable, however, to introduce here the original and more popular remarks contained in his journals on these subjects, as they

are of general interest, and his views may thus acquire a more extended circulation than if confined to his papers in scientific works. We also give some account of his doings and sufferings in connection with the St Mary's Loch scheme, as it has important bearings on the law of evidence, showing in particular that the opinions of a scientific man may be totally misrepresented before a Parliamentary Committee, and how hard it is to get such misrepresentations corrected, however momentous the issues at stake may be.

ST MARY'S LOCH WATER SCHEME.

Journal. "*June* 1871.—Several witnesses before the House of Commons, regarding the Edinburgh Water Supply Bill, have represented that I am in favour of the Town Council's project to bring in the water of St Mary's Loch, and have alleged that the doctrines laid down by me a long time ago about the action of waters on lead have undergone a 'complete revolution.' I could not stand that, so I wrote a mild disclaimer to Lord Provost Law, and sent it to the newspapers. I avowed myself a neutral, left quite in the dark by the contradictory evidence in the House of Commons, but with an intention to study the question on my own account. On the same day the Provost saw me, and pressed me to undertake my inquiry at the cost of the Water Trustees; but I declined to do so, and gave him distinctly to understand that I should undertake the inquiry in my own way, at my own time, and at my

own expense; expressed my belief that the result would be favourable, and assured him that he and his co-trustees should be welcome to any information at which I might arrive—but refused positively to become a witness before the approaching Lords' Committee.

"*June* 14*th*.—I thought it well to take advantage of six weeks of uninterrupted dry weather, while loch and stream are at their lowest; and on the morning of the 12th I set off for St Mary's Loch, with John and Dr Fraser to assist me. We spent the whole evening on the Loch, and all the forenoon and evening of the 13th on the Loch and Meggat Water. Prepossessed rather than otherwise in favour of the quality of the water, my surprise may be imagined when my very first observation showed that it is a yellow water, too much tinged for ordinary domestic use. This colour cannot be removed by mere mechanical filtration, and was such as to render a white porcelain basin of a bright amber hue at four feet from the surface, and to hide it altogether at ten and a half feet. In the South Esk, below Langholm, I have distinguished individual pebbles in sixteen feet, and below the Bracklin Falls at Callander, in twenty-one feet of water. Since returning home, I have repeated this simple kind of examination, which promoters and opponents of the Bill have alike overlooked, by placing the cover of a white porcelain crucible at the bottom of a narrow glass jar sixteen inches in height, and thus comparing the St Mary's Loch water with the present water of Edinburgh. In the latter the porcelain remained absolutely white,

in the former it appeared of a fine pale amber colour. I also compared the two by putting each in a water-bottle on the tablecloth, when the St Mary's water was obviously of a disagreeable, though faint, brownish tint. The cause of the colour was not far to seek: it is exactly the hue imparted by peat, and the flat tops of the hills around St Mary's consist almost entirely of peat. I now asked the Provost to call on me and see some things I had to show him: my conviction is he will see he has committed an error, and will retrace his steps.

"19*th June*.—The Provost wished to bring his chemist and clerk along with him, but this I declined. I told no one of our meeting, wishing that he should have the sole merit of changing his opinion. I showed him the colouring of the porcelain in the long jar, and then the two water-bottles on the tablecloth. He looked, but said nothing: I therefore remarked that 'neither he nor I would like to produce that water to our guests at our dinner-table.' He promptly replied, 'But we'll filter it.' 'No,' I observed; 'that is colour, not turbidity: ordinary filtration will not remove that.' 'Then,' said he, 'we'll mix it with the fine Edinburgh, and the colour will not be seen.' I now began to see that our Provost had fallen in love with his scheme, and, like lovers in general, would see no blemish in the object of his affection. I therefore, contrary to my original intention, determined to let him see my opinion: so I said, 'Well, my lord, if you bring that water into Edinburgh, you must keep it apart for watering the streets, for the manufac-

turers, &c., and give us our present water to drink.' 'But that will require two sets of pipes,' said he. To which I answered, 'Of course,' and our interview ended.

"30*th June*.—After our conversation on the 19th, I proceeded with some experiments on the composition of St Mary's Loch water, and its action upon lead. I found that it contained only $\frac{1}{15000}$ of solids, —rather more than others had found in winter, when the supply streams are more or less flooded. The salts constituted $\frac{1}{20000}$, and the organic matter only $\frac{1}{60000}$. This is very little to cause appreciable colour, but peat-infusion has an intense colouring property. Many years ago I found that $\frac{1}{24000}$ of peat rendered flood-water from an extensive moor in the western Pentlands as dark as brown sherry. I also ascertained that the water had no action on lead. Peat is certainly the protecting agent: a cold infusion of a hard peat made with distilled water has no action. By the post of the 28th I sent the Provost in London a short account of these details, ending with my deliberate opinion that the water of St Mary's Loch is objectionable—first, because it must be filtered; second, because mechanical filtration will not remove its unpleasant yellow colour; and third, because no one can deny that the organic constituents are within the proportion which is injurious by causing and aggravating bowel complaints. To my consternation, it was again represented before the Committee that my opinion was favourable. Therefore, under the best legal advice in Edinburgh, I wrote to the chairman of

the Committee complaining that, contrary to the law of evidence, the Provost had been allowed to give the Committee my opinion; that he had entirely misrepresented it; and that I requested my evidence should be heard, if my written denial could not be received.

"*July 7th.*—From personal experience, I have never entertained much respect for the method of inquiry by a Parliamentary Committee, and assuredly my latest experience does not alter my sentiments. In the first place, contrary to one of the best established principles of courts of law, a witness has been allowed, without authority from me, given or even asked, to state in evidence upon oath what passed between him and me in conversation. Secondly, that statement being altogether inaccurate, and having been represented by me to be so to the chairman of the Committee, and although I was allowed, without any comment upon my procedure, to be produced as a witness by either party in the case; nevertheless, the chairman is permitted, without contradiction, and backed up by the promoter's counsel, to charge me with disrespectful conduct in desiring to appear for the purpose of contradicting the misrepresentation of my opinion. Thirdly, the Provost having been permitted to state what I said to him, I was not allowed to say a word either of what I did say to him or of what he said to me, but was required by the Committee to confine myself entirely to my opinion. Fourthly, in a grave scientific inquiry, a notorious bully of a counsel was allowed unchecked to roar and sneer at me as if he had been dealing with a witness who

had come to forswear himself. I got my real opinion out, however. As to the eminent counsel, I did occasionally return him roar for roar; and had I not been afraid of injuring my evidence by the appearance of partiality, I could have given rap for rap on more occasions than one. The same evening the Bill was thrown out."

ACTION OF WATER ON LEAD—TEMPERATURE OF FRESH-WATER LOCHS.

"To A. C. *Oct. 26th*, 1871.

"Last summer I was startled by the allegation that the water of St Mary's Loch, though extremely pure, does not act upon lead. I resolved to investigate for myself a statement so opposed to the principles established by me forty years ago. I have not yet reduced my observations into method, but I think three points are determined. The first is, that some waters, such as that of St Mary's, though they contain extremely little saline matter, contain enough of peat-extract in solution to render them undesirable for supplying a city. The next is, that a very small amount of peat-extract in solution prevents the action of an otherwise pure water upon lead; that other vegetable solutions, such as tea and calumba-extract, have the same effect; and that probably all vegetable solutions which form an insoluble compound of oxide of lead will have this protective influence,—thus establishing a general principle in harmony with that established long ago by me in regard to the relative protective powers of the various inorganic salts. The

third is, that peaty waters become purified as they descend down a long gravelly channel, not alone by gradual oxidation—if even at all in that way—but by myriads of fine algæ and diatoms, which thrive and live upon the peat-extract. The last is, that the bottom of all deep fresh-water lakes is a reservoir of perpetually cold water, which lies in a great measure stagnant, or at least does not rise upward. For instance, I have lowered a thermometer to the bottom of Loch Lomond at 620 feet, and found, when the temperature of the surface was 52°, that it was at 25 feet, 51°.66 ; at 50 feet, 51° ; 75 feet, 50° ; 100 feet, 49°.5 ; 150 feet, 44°.5 ; 200 feet, 42°.25 ; 300 feet, 41°.5 ; 400 feet, 41°.5 ; 500 feet, 41°.5 ; 620 feet, 41°.5. Thus there is but a slow increase of cold as far as 100 feet ; then a rapid diminution, till, somewhere between 200 and 300 feet, the temperature sinks to 41°.5, and there is a substratum of 300 feet and more at that identical temperature. This was on 6th October. After that it may become colder : it can never get warmer so as to rise."

Journal. "16*th May* 1872.—In the course of the contest about St Mary's Loch water, it was objected that the water was not pure enough. The advocates of the scheme replied that it was only the surface-water that was impure, and that they meant to take the deep water near the bottom ; but the opponents argued that the bottom water was the worst, because stagnant and in contact with peat. Neither party could quote a single fact

in support of either of these arguments. But it occurred to me that in a deep loch like St Mary's, generally from 90 to 150 feet deep, with a shallow outlet, and exposed to severe cold during winter in that high hilly country, the cold water which descends in winter cannot rise again in summer, because heat cannot be communicated downwards from particle to particle, as in a solid body, and the heat of the earth where the water rests is at that altitude and latitude so low that it cannot nearly compensate for the cooling effect of every successive winter. Accordingly I found both in June and September the temperature to be 56° and 57° near the surface over 144 feet of water, and 46° and 47° at the bottom—which is very near the mean temperature of the earth there. As I had a far more interesting field of experiment however at Loch Lomond, where in mid-channel, for five miles on either side of Tarbet, the soundings are nowhere less than 480 feet, and in some places 630 feet, I transferred my operations thither, and made experiments in September, October, November, April, and May. The result is, that in such deep water, while the temperature of the surface during the eight months of my observations varied from 60° to 43°, there is a vast bed measuring at least 300 feet in thickness from the bottom, which maintains a temperature of 42°; and that the only change produced by a winter such as our last—an unusually open one—is to raise the level of that cold bed 70 feet. One does not well see how that vast mass of cold water can be moved, unless by powerful springs at the bottom, and there are ob-

vious mechanical reasons why springs cannot exist. In conformity with the conclusion, I find that the water at the bottom is different from that at the surface: it has decidedly more colour; the solids amount to $\frac{1}{20000}$, and even $\frac{1}{16000}$; but at the surface they generally are $\frac{1}{32000}$ only, and never exceed $\frac{1}{28000}$; moreover, the bottom water contains more chlorides, more lime salts, and the soap-test proves it to possess more hardness. On the 10th April I found the degree of hardness to be 0.50 at the surface and 1.10 at the bottom—very little in both, but at the bottom double what it was at the surface.

"The state of things seems to be this: the deep water acquires a mean and low temperature under the two contending forces—the earth's mean temperature of 61° in our latitude at 600 feet under the sea-level, and the descent of cold water during the winter; and during summer and autumn the upper stratum of water is raised above 42°, only so deep as the sun's rays penetrate. This limit is very deep in so pure a water as that of Loch Lomond, but still there is a limit, for the water of Loch Lomond is not quite colourless, like that of genuine spring-water, as a pure white porcelain basin two or three inches in diameter becomes invisible at 21 feet. The sun's rays seem to exert a heating power so deep as 250 feet."

TEMPERATURE OF DEEP WATER AND OF THE AIR COMPARED.

"On the 27th April 1875, I took the temperature at the bottom of Loch Katrine, a depth of 480

feet. It was exactly 40°—that of the surface-water being 45°, and that of the air 53°.5. A strong breeze springing up prevented me from ascertaining the upper limit of the stratum of lowest temperature. Three days afterwards I found the temperature at the surface of Loch Lomond to be 46°, and that of the stratum of lowest temperature 40°.6. That is the lowest that I have observed in Loch Lomond.

"On April 10, 1872, the temperature was 42°.0.
„ May 6, 1872, „ „ „ 42°.1.
„ May 14, 1873, „ „ „ 41°.5.
„ April 30, 1875, „ „ „ 40°.6.

"My three observations correspond closely with the mean temperature of the five preceding cold months of each year (by observations at Balloch Castle, calculated for me by Mr Buchan). Thus—

	Deep-water temperature in spring.	Mean temperature of the air of five previous cold months.
1872, . . .	42°.0	41°.35.
1873, . . .	41°.50	40°.26.
1875, . . .	40°.60	39°.04.

"The difference of 1° in the water-surface temperature over deep water, between the two lochs, corresponds with the difference of altitude, Loch Katrine being 365 feet and Loch Lomond 23 feet only above the sea. Two days intervened between the two observations, but, as the weather was steadily uniform, the distance of time cannot affect the result. An ascent of 300 feet is usually held to lower the mean annual temperature by 1°, as indicated by these

observations. The difference of elevation may also be held as explaining the difference of bottom-temperature—viz., 40°.6 in Loch Lomond, and 40°.0 in Loch Katrine."

SIMPLE ANALYSIS OF WATER.

"One result of my recent inquiries is, that scientific chemists have taught the public a very profitable lesson for themselves — the chemists — but a very doubtful one so far as the public necessity is concerned. A very elaborate analysis lasting for several weeks is quite unnecessary, so far as the domestic uses of water are concerned. I am satisfied that, except in very rare cases, it is sufficient to ascertain—(1.) The amount of solids in general; (2.) The hardness, by Clark's soap-test; (3.) The predominating salts; (4.) The amount of colour, by means of a 16-inch glass to be held over white paper, but not touching it; (5.) Uncoloured organic matter, by means of its decolourising agency on permanganate of potash."

FILTRATION OF PEATY WATER.

Journal. "LOCHGOIL, 25*th Sept.* 1872.—I have been making experiments on the effect of various comminuted rocks on the colour of peaty water, and I find,—1. That the ordinary bluish-grey, light-coloured mica-slate of the district—a very pure rock, free from disseminated quartz, not very destructible by weather, yet friable—when reduced to coarse powder, and packed loosely in a glass tube 8 lines in diameter and 24 inches in length, removes

the yellow colour of a moderately peaty water almost entirely. Twelve ounces of such water was purified in this way. 2. An unusually hard dark-bluish-grey mica-slate, composed of very dark mica and much finely disseminated quartz, and difficult to reduce to a coarse powder, acts with energy, but is inferior to the last. Colour was greatly removed; but a turbidity was produced, which even filtration through paper did not materially reduce. 3. A hard clay-stone, fine-grained, and very difficult to break into small fragments, acted very much as No. 2. 4. A soft pale sandstone acted much more feebly than the three previous rocks in removing colour, and left the same turbidity as Nos. 2 and 3. 5. Pure white quartz reduced the colour a very little. The water passed through more quickly, however, than in the other cases—in which the percolation went on very slowly."

Here may be introduced a description of two instances in which Sir Robert assisted in the application of poison for useful and legitimate ends.

In 1831 he was consulted by a Leith merchant on the practicability of employing poison for killing whales. Sir Robert believed that concentrated prussic acid might be successfully used for the purpose; and a mode was devised of fastening a phial containing the acid to a harpoon, in such a way that the phial should break when a strain was put upon the harpoon after entering the body of the animal. We have not space to give the details of the trials

which were made. They are to be found in the Transactions of the Royal Society of Edinburgh. Suffice it to say, that notwithstanding the precautions enjoined by Sir Robert, in the very first attempt, the surgeon, when preparing the acid for action, dropped the bottle of concentrated acid on the cabin floor, and immediately fell down insensible! His life was saved by the captain promptly fishing him up through the skylight with a boat-hook, and dashing cold water over his head. Unfortunately the ship was crushed in the ice and wrecked before any further trial could be made on that voyage. Sir Robert had great difficulty in getting any information as to subsequent proceedings, as the owners of whaling vessels were naturally anxious to keep their trials secret for their own benefit; but from indirect sources of information he had no reason to doubt that successful attempts were made. In fact they were too successful. He was told that the animals, on being struck with the poisoned harpoons, dived in the usual manner, but speedily the rope slackened and the whales came to the surface dead; and that in some instances the whales were instantly paralysed, and made no effort to dive at all. This sudden termination so terrified the men that they feared to flense the whales, lest so deadly a poison should destroy themselves, and probably for that reason the method was abandoned.

Again, Sir Robert recommended strong prussic acid to an intelligent ratcatcher who consulted him as to the possibility of poisoning rats so rapidly that they

should die before reaching their holes. The rat-catcher made trial of it, and returned in a few days to give the results of his experiment. He put the poison as directed in the middle of a barn infested by rats, and quickly retiring took his station outside, where he could see through a hole in the wall what took place. Very soon the rats swarmed to the bowl, squealing and scrambling over each other's backs to get at the fluid. "And did any of them get back to their holes?" "Not one. They all lay dead round the bowl!" Here once more the experiment seemed eminently successful, but the poison is much too dangerous to be recommended for general use.

CHAPTER X.

MINOR SCIENTIFIC OBSERVATIONS.

PRECAUTIONS AGAINST INFECTION — SOLDIERS' RATIONS IN THE CRIMEA — SUNSTROKE — BRITISH PHARMACOPŒIA — SANITARY STATE OF THE ARMY IN INDIA—SUPPLY OF DOCTORS—CONSUMPTION IN THE HEBRIDES — SANITARY REFORM — MEDICO-LEGAL WORK—ANTS IN THE ISLE OF MAY—CUCA—ANTI-POLLUTION OF RIVERS — VIVISECTION ACT — EFFECT OF A MEAL ON THE PULSE — BOTANICAL NOTES — NOTES ON TREES — CRAIGLEITH FOSSIL—TREE-MEASUREMENTS—EFFECTS OF VERY LOW TEMPERATURE ON TREES.

THE next series of extracts treats of various medical, medico-legal, dietetic, and physiological inquiries and speculations. We give these as far as possible in chronological order, and mainly without remark.

PRECAUTIONS AGAINST INFECTION.

"To D. C. *24th April* 1855.

"1. Avoid all unnecessary exposure.

"2. Stand rather than sit beside the patient's bed, and remain as much as possible near the bottom rather than the head of the bed.

"3. Keep a little off for a few seconds when the bedclothes are turned down.

"4. If near-sighted, draw the breath and hold it hard before looking at the tongue, or narrowly at any other part of the patient.

"5. Never stethoscopise unless it be absolutely necessary: when necessary, expose the patient's chest for a few seconds before beginning, hold the breath on a full inspiration while making the examination, and be quick about it.

"6. After finishing with one patient, go into the middle of the ward for a few seconds to draw your breath a bit before beginning with another.

"7. Never enter a fever ward in the morning without breakfasting, or if at a too early hour for that, without taking coffee.

"8. Have a ward coat, to be cast off and ventilated after getting into quarters.

"9. Bully the attendants into regular ventilation.

"The chief merits of these rules are, that they are obvious in their object, easily acquired so as to become a habit, and such as may be practised without exciting any attention from bystanders.

"After my sixth fever I bethought me what I should do to escape a seventh, and these are the measures I adopted."

SOLDIERS' RATIONS, CRIMEA.

"To D. C. 31*st Dec.* 1855.

"The subject of soldiers' rations in the Crimea has been referred to me. The result already is that their

rations will be increased; and if my whole advice be taken, it will be made more diversified, and every way more fit.

"I find that the world does not yet know the main causes of the destruction of our soldiers last winter, or the extent of lamentable ignorance on the part of our military authorities as to everything except manual exercise, manœuvring, and fighting. But as I am for the present a sort of depositary of Government secrets, I shall say no more. Perhaps, indeed, I should not have said so much; but though I am a good secret-keeper, I admit that this one is burning a hole through me, under the combined agency of surprise, grief, and indignation."

SUNSTROKE.

"To A. C. 16*th July* 1858.

"I lament to see sunstroke everywhere returned as 'apoplexy.'[1] I infer it is everywhere treated with blood-letting; and one report indeed—I forget from what place—mentioned that the sufferers had been all bled, *but* (!) that all had died. Such ignorance is deplorable, since the deadly effects of blood-letting, and the utility of cold water, have been again and again made the subject of observation by East India practitioners for many years back. I forget whether I mentioned the pleasure I felt on

[1] In the second edition of the 'Nomenclature of Diseases' (Royal College of Physicians of London), 1885, sunstroke is classed with lightning-stroke under "Effects of Injuries and Climate," for purposes of registration.

receiving your confirmation of these statements from your Rangoon experience. It happened that I had a letter on military medical affairs from the new Director-General, Dr Alexander, at the very moment when I observed the term apoplexy applied in the Lucknow returns to sunstroke. So, in my answer, I appended an exclamation of horror and warning, and asked whether it was possible that army surgeons were still not aware of the true nature and treatment of the affection. I might have added, Why were they not all warned on the subject, when they were setting out on an adventure in which the accident of sunstroke was likely to be more fatal than all the balls and bullets of Delhi and Lucknow put together? I hope you may have been of service in correcting the error."

FIRST BRITISH PHARMACOPŒIA.

"To A. C. 16*th January* 1859.

"I have begun a new duty—that of supervising the labours of the committee of the 'General Medical Council' for preparing a 'National Pharmacopœia.' We have a sub-committee in London, another here, and a third in Dublin. I threw over the initial and responsible duty upon the London sub-committee, with Garrod, Professor of Materia Medica, University College, for its secretary; but I retain, of course, a good deal to say as convener of the whole committee and chairman of the Edinburgh sub-committee. Dr Anderson, by hearty agreement of the Londoners, is to do our finer chemical work; Mr Warrington, the

head chemist of Apothecaries' Hall, London, all the other chemical and galenical work; Balfour the botanical portion. We are also to have powerful assistance from Jacob Bell's Pharmaceutical Society both in London and here."

"2*d October* 1861.—Three delegates from our National Pharmacopœia Committee, from London, Dublin, and Edinburgh, met here to knock off all disputed points which have arisen during our long correspondence. Two members, Dr Garrod of London and Dr Neligan of Dublin, were my guests. The latter is an Edinburgh graduate and old pupil, whom I marked out as a student certain to distinguish himself: Dr Garrod is a remarkably amiable and well-informed man—too hard a worker, I fear, for his strength—and for whom I have taken a great regard. We had other clever men from the two sister cities, especially one so Irish in his dialect, and another so highly English in his, that I had to listen *auribus erectis* in order to understand either; and, of course, to one another they were quite unintelligible without an interpreter. We got through an immensity of work, and have wellnigh settled all articles necessary for this new Treaty of Union between the three countries."

"17*th May* 1864.—I returned home twelve days ago from London, out of humour as usual with the little done at the Medical Council. I found a universal outcry there against the British Pharmacopœia. In Edinburgh it has brought great contentment to practitioners and druggists; the latter,

in particular, are full of its praises, mentioning, at the same time, a few blemishes. Our Dublin members of council gave the same account of the opinion entertained of the Pharmacopœia there. In London the chemical processes are said to be wrong; the galenical ones not good; the changes of name unwarrantable; the alterations in strength dangerous; the language inconsistent; and the want of a table of doses greatly felt. And yet the alterations made upon the last London Pharmacopœia are fewer than those which either the Edinburgh or Dublin Pharmacopœia had to undergo. Then Dr Apjohn of Dublin and Dr Douglas Maclagan insist that the chemical processes charged with error have answered perfectly in their hands. Messrs Duncan & Flockhart are loud in praise of the galenical formulæ. I am prepared with excellent reasons for every change of name; and it is strange that no critic who clamours for a table of doses seems aware that no Pharmacopœia ever did contain one. Still, I confess that I stood out for one in committee, but London and Dublin outnumbered Edinburgh when we came to decide the question. The conclusion I come to is, that the critical clamour in London is nothing more than the progeny of a similar outcry which arose there on the publication of the last London Pharmacopœia, of the last Edinburgh one, and of my Dispensatory. By-and-by all these works outlived defamation, and were rapidly sold off. I prophesy that the same will be the fate of the British Pharmacopœia; indeed 17,000 copies had been sold off on the 15th of April. Some of the

changes strike at the root of the detestable English apothecary system of complex prescription; and many fear a decrease in the draughts and powders to be daily sent out from their establishments. Then there are errors enough to make a plausible foundation for the censure of a virulent critic, but certainly not enough for an impartial one. Conscious that I did my duty to the full, I have heard all the abuse of the Pharmacopœia with calmness and even amusement. Thus various men opened their mind freely to me, finding that I took with philosophy all that was said. Hence I became satisfied that an early reprint, with a few alterations, and a table of doses, is a desirable measure. A committee of Council has consequently been appointed to prepare such a reprint, or to get up at a later period a new edition, according to what they may find to be the more advisable course of the two."

SANITARY STATE OF ARMY IN INDIA.

"To A. C. 17*th August* 1863.

"The other day I was surprised by the opening of a correspondence with no less a person than Miss Florence Nightingale. Her object was to get a review by the Edinburgh Medical Journal of the enormous Blue-book on the sanitary condition of the army in India. I feel great pity for the reviewers to whom, at my instance, this severe task has been committed. It appears, from what I have hitherto seen in the report and elsewhere, that the result is to lay much of the blame of the high mortality to

account of insufficient space, inadequate ventilation, want of drainage, and impure water at the military stations. It is plain that the committee have proved great and habitual negligence of the soundest sanitary laws, but the general feeling I find to be that they have pushed their conclusions on this head too far. I was curious to see whether they had arrived at the facts you mention as to the habitual soaking among officers as well as men; but I don't discover in such cursory reading as I have attempted that this practice has been adverted to, so far as the officers are concerned. The unwillingness of the witnesses to charge such habits upon their own class has probably been the reason. But I am satisfied that the habit of perpetual stimulation, though much short of causing intoxication, must prove, as you have observed, one of the most fruitful of all causes of climatic disease in a hot climate."

SUPPLY OF DOCTORS.

"To A. C. 17*th December* 1863.

"Since 1860 the schools of medicine in the kingdom have fallen off in numbers very materially. I am convinced that the number now studying at all the schools is beneath the necessary supply for home, military, naval, and colonial service. I cannot now answer the applications made to me for men to fill small professional posts in the country; and matters in this respect will become worse for a good many years to come. Perhaps this is all right for medicine. Society will feel a want, appreciate physicians more,

pay them better, and thus in the end more and better men will be attracted into the ranks of medicine. Until eight or ten years ago there was, on the contrary, a plethora of practitioners: an odious rivalry in the reduction of fees took place; and thus the profession lost in society the position it held till 1830, or a later date."

CONSUMPTION IN THE HEBRIDES.

Journal. "*Nov.* 30, 1866.—Answer at last from Dr Macdonald of Lochmaddy. Consumption *does* occur among natives of North Uist living there all their lives—much in the proportion observed on the mainland; 29 cases having occurred in 302 total deaths in a population of 4000 in five years, the disease at times sweeping off an entire family."

SANITARY REFORM.

Journal. "*8th July* 1868.—The Royal Sanitary Commission was appointed by the Home Secretary about four months ago, and I was asked to serve on it, at a time when it was intended to extend its inquiries to Scotland as well as England; but when Mr Bruce determined to confine the inquiry in the first instance to England, and the Scotch members were struck off, I was retained, as being thought likely to afford useful information. The other members desired to have some views of mine brought out fully as evidence; and thus I found myself on Monday last in my ancient position—the witness-chair, in which I had to sit and talk for nearly two hours.

"There were three points to which my chief testimony related,—the destruction of streams by manufactories, the inaccuracies of the death-register, and the advisability of vesting the administration of a Sanitary Act in a Board especially chosen for the purpose. The memorandum issued by Government for the guidance of the Commission contained, as an instruction, that 'great tenderness will require to be shown to existing manufactories.' But having intimated my ability and readiness to defend the contrary proposition, I was asked to become a witness for the purpose. The grounds for my opinion were—1. That the manufacturers were the worst of all nuisance-makers. 2. That they did least of all to prevent the nuisance they created. 3. That when compelled to exert, in preventing the damage they did, the same ingenuity which they successfully exercised in advancing their manufacture, they not only, in every instance which had come under my personal notice, did succeed in reducing or entirely preventing injury to their neighbours, but likewise incurred thereby no eventual expense, and even sometimes made profit of their neighbourly behaviour. 4. That, in my own time, two beautiful streams—the Esk and the Water of Leith—near Edinburgh, had been polluted to destruction, and that the manufacturers were gradually using up the streams of Scotland.

"As to the register of deaths, I confirmed, from my experience in the Standard Assurance Company, evidence previously given by Dr Farr, Registrar for England, to the effect that the causes of death are

frequently returned incorrectly, and, still oftener, very vaguely, so as seriously to vitiate the statistics of the country. I mentioned two instances of the register return having ascribed to diseased heart deaths which I knew to be due to *delirium tremens;* and I stated how, by corresponding with the medical men who sign certificates of death to the Standard Assurance Company, I obtain correction of vague returns, and consequently a more precise assurance register.

"A deal of evidence had been led before the Commission to prove that the administration of a consolidated Sanitary Act cannot be intrusted, in either rural or city districts, to Vestries or Boards of Guardians in England; but the tendency was to admit the ability and impartiality of municipalities to administer such an Act in cities and large towns. I testified, however, that this proposition would not apply to Scotland, where town councillors generally had not the necessary intelligence for so important a duty, nor sufficient freedom from the double bias of fellow-feeling for brother tradesmen and of fear to offend their supporters in the burgh constituency. I gave several instances, and more especially the smoke nuisance in Edinburgh and Glasgow, where there was a great show of municipal action, and yet very little done to enforce an Act which had been in nominal operation for some years. This merciless assault called out an advocate of smoke nuisance and other manufacturing selfishness, in the shape of an M.P. and member of the Commission, who tackled me well as a cross-examiner, and gradually by his questions betrayed himself to be

a Welsh copper-smelter, who desired that he and his tribe of poisoners should be permitted to lay waste town and country, under the theory that whatever may be done to destroy other smokes, it was impossible to abate that from reverberatory furnaces. I replied that I would not admit the exception; that, being no engineer, I was not prepared with a remedy for him; that I should know first what had been tried unsuccessfully, before being asked to allow that everything had been done that might have been done; and that as for the allegation that the destruction of reverberatory smoke was 'impossible,' he should recollect that in these days 'it was the business of engineers to deal with impossibilities.' My cross-examiner then, at the recommendation of the chairman, ceased to worry me any longer; and I hope the result may be that the copper-smelter will bethink him how to put his Welsh house in order before a new Act compels him to do so."

MEDICO-LEGAL WORK.

"To A. C. 2*d April* 1871.

"You complain of having, as medico-legal analyst, a quantity of useless, unavailing work thrown upon you. I used to find this annoyance too when employed by the Crown and other parties to conduct medico-legal investigations. To avoid it, I insisted on having a full account of the precognition—first, to direct my search for poison in the probable direction; and secondly, to enable me to judge whether an analysis was advisable at all. Sometimes I in

consequence declined to perform an analysis. On one occasion a clamour arose here that a man of property, which, as he died intestate, went to a Catholic and the Catholic Church, had been poisoned by Jesuits. Having attended him during an illness of a few hours, and having witnessed the *sectio cadaveris*, when a clot as big as a mandarin orange was found in the brain,—to my amazement and amusement, no less a man than a judge on the bench—a near connection of the deceased—called to tell me the rumour, adding that he was assured the Jesuits knew poisons 'unknown to Dr Christison,' and begging that I would reopen the body and test for poison; but I declined (1), because the symptoms and history of the illness were incompatible with poisoning; (2), because the morbid appearances contradicted the public whim; and (3), because, if I did make an analysis, of what advantage would it be to me—to him, the judge—or to the public? as I should discover nothing, and my failure would be ascribed to ignorance of the poisons of the Jesuits. Moreover, I represented that the performance of an analysis at the recommendation of a judge would simply be to acknowledge that my opinion, already given, was loosely founded, and that poisoning might really be suspected. This last argument overwhelmed him."

A PLAGUE OF ANTS.

Journal. "*May* 27, 1872.—On the 25th instant, in company with some of the Commissioners of the Northern Lighthouses, I visited the Island of May with

the object of considering what could be done to remedy a great invasion of ants. The ant-hills abound on the east side of the island, but there are considerable patches of fine pasturage quite free from them. Contiguous to these are many tracts of land so overrun with them that an active man might spring from ant-hill to ant-hill over no little stretch of ground. They vary in size from low elevations six or eight inches in diameter to mounds three feet in diameter and a foot in height. They consist of loosened soil, covered with turf, loosened also but unbroken. The ants seem to commence operations sometimes just under the turf itself, but sometimes under a stone as big as a brick, half sunk in the ground. On turning up the turf or stone of a new nest, the inhabitants are found densely assembled in countless multitudes so agglomerated that the thrust of a needle would transfix three or four of them at once.

"The nests do not seem to grow by an accumulation of added material, but simply by the gradual loosening of the friable unplastic soil. The biggest felt like a sponge, and by careful stamping a moderate-sized one could be reduced to the level of the surrounding turf. The soil is a fine comminuted, unadhesive mould, the produce of the disintegrated greenstone of the island. There appear to be two species of ants, which live apart from each other, though not far off — the common red ant, and a yellow one which is smaller, and scarcely so nimble in its movements. At present the small nests contain many larvæ. For so formidable an invasion no

remedy available at moderate cost seems so likely to succeed as breaking up the ant-hills and trenching the ground frequently, so as to deprive the insects of shelter and rest. The winter season would obviously be the most suitable time for this operation, by subjecting the insects to inclement weather; but as the nests are at present full of larvæ, it is advisable to stop the breeding of them by beginning at once. I therefore made some experiments with carbolic acid, and found that the crude acid diluted with one hundred parts of water destroyed a populous nest in a few seconds, and that in an hour and a half afterwards nothing but shrivelled carcasses could be seen. The solution which I used will not cost above a halfpenny for a nest two feet or more in diameter; but my impression is, that a solution three or four times more diluted will serve. The method by trenching, and that by poisoning with carbolic acid, alike involve a temporary destruction of the grass, and that might be a serious objection on the large scale; but the carbolic acid will certainly prove a ready way of destroying any nests which may be found arising in new ground."

"*June* 3.—The 'Scotsman' newspaper having taken notice of our expedition, and the 'Times' and 'Pall Mall Gazette' having copied its article, I received an inundation of remedies from volunteers. One proposes a strong solution of ammonia, another sea-water, a third boiling-water. Three several correspondents recommend solution of guano; another advises the introduction of pheasants into this utterly bare and

wind-swept island; another hedgehogs; another, cock-roaches!"

EXPERIMENT WITH CUCA.[1]

Journal. "*Sept.* 30, 1876.[2]—At 12 commenced the ascent of Benvoirlich from Ardvoirlich House. At 2.10 I reached the summit, twenty minutes after the others. The whole ascent grassy, except about 400 feet of stony ground between 600 and 200 feet from the top; the last 200 a sward of moss, grass, cranberry, and a few dwarf bilberries, soft and deep. The summit, a narrow ridge of 130 yards between two blunt points, unlike any other Highland mountain of its altitude, has a similar sward. Whence comes the immense accumulation of sharp mica-slate stones on the N. slope of 1200 feet when there is no precipice or even bare rock on the summit?

"I reached the top very tired. Determination only carried me up the last 600 feet. As soon as I arrived I began to chew cuca leaves, and consumed ninety grains during the half-hour spent on the summit and the first half-hour of the descent. When I started for the descent the sense of fatigue was entirely gone. I went straight down without a stop in $1\frac{1}{4}$ hour to the road, not much tired—able to walk comfortably a mile and a half to meet the carriage. Although my limbs felt rather heavy to move, I seemed not to care

[1] Sir Robert endeavoured to introduce *cuca*, the original spelling, instead of *coca*, both because it is correct and because coca is too like the usual way of pronouncing cocoa, the name in use for preparations of chocolate; but established custom has been too much for him.

[2] Age seventy-nine.

for this. I had no thirst, but got hungry, and then for the first time took some food—viz., two sandwiches and a little whisky and water. Made a good dinner at six, and felt very comfortable afterwards; but took rather more wine than usual. Slept well till 2 A.M., when I was kept awake for an hour with a hot feverish feeling, a frequent thumping pulse, and pulsation in the head and chest. Fell asleep again, and woke at 7.30, free from fever and much refreshed, and continued quite well afterwards."

ANTI-POLLUTION OF RIVERS ASSOCIATION.

"To Dr BEDDOE, Clifton. 19*th Jan.* 1878.

"I take deep interest in this matter. It is long since I maintained with dogged determination to all manufacturers that every nuisance to air or to river might be put down, and generally with profit, 'if they would apply to the prevention of nuisance a little of that ingenuity which they had hitherto devoted exclusively to the extension of their manufacture.'

"I have never myself been engaged in a law case regarding water-pollutions by paper-making or paraffin-oil-making, believed to be incurable, which did not result in cure of the mischief."

THE VIVISECTION ACT.

Sir Robert was an uncompromising opponent of "The Vivisection Act," and gave his reasons in a letter to the Lord Advocate, before it was introduced into Parliament in 1876; but as his views were reiterated at greater length and with greater

force in 1879, in a letter written by request of Mr Richard Cross, then Home Secretary, on the occasion of an attempt to make the measure more stringent, we give the latter letter only:—

"*Jan.* 13, 1879.

"DEAR SIR,—I feel much indebted to your late Edinburgh visit for reminding me of an intention, to address you on the subject of what is usually called 'The Vivisection Act,' which I had entertained at the period when it was on the point of being brought before Parliament; and I have also to thank you for your kind permission to submit my views to you still.

"I was not surprised that the accounts published in this country of the extent and recklessness of the physiological experiments on living animals, carried on in some Continental schools, excited strong prejudices against the practice in various quarters among men of influence. But I was not prepared for the facility with which these foreign tales were assumed to be applicable to home investigations.

"Ultimately I looked with absolute dismay on the effect of any prohibitory legislation in this direction on the progress of physiology, therapeutics, and medical jurisprudence in Britain. Under your guidance less restriction has been imposed by the Act than was apprehended. But still I entertain great fears of the consequences, and very much more were the uncompromising opponents of the use of living animals in physiological inquiries to prevail on the Legislature to impose checks of a still more stringent nature.

"To the more moderate and reasonable of our opponents,—and it is to them alone that argument can be addressed,—I should have said then, and say now—Confine experimentation on living animals to the principal medical schools of the country; prohibit it among students and others unless at the schools, and also unless under the instruction and observation of their professors or other teachers; make their instructors responsible for the observance of due forbearance and decency on all occasions; require that the superior authorities of the schools confine such investigations within proper limits; but avoid all restrictive details which will damp scientific inquiry by constantly presenting to the public, and to the inquirers themselves, that their researches are regarded as akin to criminal acts, if not absolutely criminal.

"In confirmation of these general views, I would ask reasonable men rather to look back on the history of the subject, than solely to providing for an imaginary future; and in illustration I would beg to put before them my own, though rather limited, experience as one of the obnoxious experimentalists.

"When I went as a young graduate in 1820 to Paris for further professional study, I found the Parisian school and profession enthusiastic in praise of the researches in toxicology of the late Professor Orfila, and his brilliant lectures on medical jurisprudence. These researches had been carried on to a vast extent during a series of years preliminary to the publication of a very famous work, his 'Toxicologie

Générale.' He thus completely revolutionised the whole doctrine of poisons, brought to light a multitude of important facts, corrected many serious old errors, effected valuable discoveries in the treatment of poisoning, established searching processes for the detection of poisons and poisoning in every variety and complexity of circumstances,—in short, erected the whole subject for the first time into a science—toxicology. This grand result could never have been reached by observations on man, or otherwise than by multifarious experiments on animals; and I must in candour admit that Orfila's researches involved at times severe treatment of them. Now I would request our opponents to reflect calmly on this statement and say, whether they would desire that these researches had never been undertaken. Would they wish that we were still left in the dark ages of toxicology, when poisoning was habitually treated with adverse, instead of beneficial, remedies, and when in criminal charges the innocent were sometimes condemned, and the guilty too often escaped? Would they prefer that the civilised world still remained at the mercy of a Brinvilliers, and that Palmer and Company could perpetrate their atrocious crimes with impunity?

"I heard some of Orfila's lectures, and witnessed in private some interesting experiments with strychnia and the poison of *rabies canina*. Thus I was inoculated with some of his spirit, and with much of the enthusiasm amid which I lived. When, a few months after my return from abroad, I was appointed Professor of

Medical Jurisprudence in our University, I found the entire subject of medical jurisprudence in a very unsatisfactory condition in every part of Britain. It had been almost entirely uncultivated. In its practical applications for the detection of crime it was often faulty, and frequently bootless. It had been taught nowhere in any of our schools, except for fifteen years in the University of Edinburgh; and there its amount of success had been far from encouraging. I saw, however, that toxicology was a branch likely to bring the whole subject into notice; and I therefore began research in this department. Orfila had almost overlooked the action of oxalic acid, at that time (1823) a frequent cause of fatal accidents, as well as a means of suicide, in Britain, and beginning to be known also as an agent of crime. Along with a fellow-graduate, Dr Coindet of Geneva, I undertook a full inquiry to settle disputed points as to its action, its effects and their treatment, and the detection of it. We found that it has two distinct actions,—as a local corrosive, and as a general narcotic; that the former action could be put an end to by any anti-acid counter-poison, but not so the latter; that its narcotic action could be checked only when the compound so formed was insoluble, because the soluble salts of oxalic acid were as powerful narcotic poisons as the acid itself, and consequently that lime and magnesia were its true counter-poisons; and that the acid could be detected in all circumstances with great certainty by the processes and tests which we established for the purpose. Since that time there has

been no doubt or difficulty as to the treatment of poisoning with oxalic acid, and no uncertainty in any medico-legal investigation concerning it. Do the opponents of experimentation on living animals think that the gain thus secured to science and public safety ought to have been left unsought, for the sake of the few animals which were required for experiment?

"Great confusion and error long prevailed as to the effects of hemlock, and the manifestations of its action. Modern cases represented the phenomena in man to be almost directly the reverse of those described by Plato in relating the death of Socrates. I undertook an inquiry into the question, and found that all modern descriptions were wrong and that Plato was right;[1] that modern treatment was in principle the opposite of what the true action required; that in a criminal trial there would have been a failure of justice, owing to misconception of the true phenomena of poisoning with this most deadly and familiar poison; and that all the applications of the supposed action of hemlock to the treatment of diseases, and even the very doses of it, were little short of being absurd. Is it thought desirable by the opponents of physiological research that science and society should still be ignorant of the truth in these respects?

"A scoundrel in the north of Scotland got hold of a poison unknown to toxicology. Having taken umbrage at a fellow-servant, he gave her a decoction of laburnum-bark in her soup; and she had

[1] This was his final opinion on a point which he considered doubtful when writing his paper on the subject in 1836. See p. 179.

in consequence a long illness and a narrow escape from death. The case having been put into my hands by the Lord Advocate of the day, I found I had to deal with a new poison. Laburnum-seeds were well known to be poisonous, as also were the leaves and pods; but no mention was made in our books of the bark. Presumptively, it was poisonous too. But the law refuses to have to do with presumption—especially if certainty can be attained. I stated how matters stood; got the necessary delay; made a few experiments; and found laburnum-bark, taken from the same tree which had supplied the criminal, to be a very powerful poison. I presume this belongs to a class of cases in which the Legislature would not admit of any restriction on experiment.

"At one time I had planned a wide and prolonged investigation into the Physiological Action of Remedies—*i.e.*, their action on the healthy functions and textures—as an important, indeed essential, foundation for arriving at positive knowledge of the influence of many of them on disease. This inquiry had been almost neglected for various reasons, and chiefly on account of its extent, its difficulty, and the long time required. But at that period I had life before me, and the certainty of making discoveries. At the outset I found it was necessary to secure uniformity in our remedies; and for that end, to study in the vegetable division the influence of season, climate, site, soil, and other circumstances regulating vegetation, in modifying the activity of poisonous and medicinal plants. This inquiry soon supplied new and often startling information, fruitful in direct

practical results. But circumstances compelled me to turn my attention in a different direction. I mention the incident principally as introducing what has since been done quite recently in the same field by other investigators.

"In my lectures in the University on the Action of Remedies, I annually referred to this method of investigation as likely to seize hold of the minds of professional instructors ere long, and as an important and promising field of inquiry. At last, a few years before my late resignation of office, I was able to signalise the evident approach of a new era in the study of therapeutics in the shape of practical physiological researches in this department of medicine. Germany led the way, London soon followed. About the same time Edinburgh took its share also. I was a member of a small association of professors and their class-assistants who undertook a physiological inquiry into the action of remedies on the liver. But, like others, I was never more than a nominal member; and eventually the work devolved altogether upon our new Professor of Physiology, Dr Rutherford.[1]

"Medicine was thought to possess several agents which acted, some of them by increasing, others by lessening, the functional activity of the liver. But belief in these remedies rested on no secure evidence. They were distrusted by many; they

[1] Dr Arthur Gamgee did a share of this work, which was very laborious. Professor Rutherford resumed the investigation some years later. Sir Robert aided him with advice and encouragement, and with active sympathy, when attacked by the opponents of vivisection.

were repudiated by not a few; and at length there came to be a general doubt that any remedies of the kind really existed. But by a series of protracted, laborious, and difficult investigations, Dr Rutherford has restored to medicine remedies which it was on the point of forsaking, increased largely their number, ascertained numerically their relative activity, and in short established a solid body of doctrine regarding the influence of external agents on the liver, which is among the first instalments of what we may look for from the application of physiological inquiry to the study of therapeutics, and which will give him a high place in the history of that branch, the ultimate object indeed, of the fundamental medical sciences.

"Especially, too, ought it to be considered that Dr Rutherford soon found out how his experiments could be carried through, as I have myself witnessed, without occasioning suffering, or any sign of suffering, in the subjects of them. Nevertheless he has been assailed by extreme zoöphilites as if his investigations had no other result than useless torture. But the more reasonable may well consider whether, the results referred to having been attained, they would now prefer that they never had been known to physiological science and medical practice. And above all, in conclusion, do they think that the progress of the new era thus opening up for the advancement of the healing art, should be either stopped or trammelled by legislative interference?

"I must apologise for my delay in thus answering

your invitation, and likewise for having insensibly written a lecture rather than a letter. I fear even that my statement may appear to have too much the air of a bit of egotistical autobiography. But the last fault is inseparable from my design,—to give merely the personal experience of an experimentalist. I wish very much, however, that others in similar circumstances with myself would follow my example. A body of evidence on this subject would be thus collected, which I apprehend would be satisfactory to all reasonable objectors to rational and carefully designed experimentation on living animals."

"[On Friday, Jan. 10, I met Mr Cross at dinner at the Lord Provost's. After dinner he came up to me in the drawing-room, and asked how the Vivisection Act was working here. I replied that it seemed to be working smoothly, but was felt to be a clog. Mr Cross then said, 'Remember I am with you; but such pressure was put upon me that Government could not but yield something. I have satisfied the moderate of your opponents, represented by Lord Shaftesbury. But there is a dissatisfied party who may attempt further restriction.' I thereupon observed that when the agitation began, and it was understood that Government was inclined to move in the cause of the anti-vivisectionists, I had entertained an intention of writing to him my own experience as an experimentalist, but refrained from taking that liberty, as I was not then acquainted with him. He at once requested me to write to him yet, repeated the request at parting, and next evening at

the Lord Advocate's reminded me of my promise. This is the history of the preceding letter.]"

EFFECT OF A MEAL UPON THE PULSE, ETC.

"To Dr Beddoe, Clifton. *26th March* 1879.

"From many experiments I made in Paris when a student there in 1820-21, I found that a meal has a wonderful power in exciting my own pulse and raising the animal heat; that the effect of a breakfast of *café au lait* and bread-and-butter, owing to the greater excitability of the circulation in the forenoon, is much greater than the effect of an excellent dinner at 5 P.M. of soup, three *restaurant plats*, and a pint bottle of *vin ordinaire de Bordeaux;* and that the effect of breakfast lasts for a good many hours, and decidedly longer than that of dinner.

"I made one set of observations on the pulse and temperature without taking any morning food or drink whatever, without exercise, confining myself to my room. Beginning at 9 A.M., immediately after dressing, half-hourly observations yielded the following results up to 4 P.M.

Pulse,	64	68	66	65	66	63	64	64
Tem.	99°.35	99°.5	100°	99°.75	99°.75	99°.5	99°.75	99°.75

Pulse,	64	65	64	66	65	65	66 at 4 P.M.
Tem.	99°.5	99°.66	99°.75	100°	100°	99°.75	100°.

"I then found that after breakfast, and a gentle walk of half a mile, the increase in forty-five minutes or one hour was from 65 to 88, from 67 to 90, from 63 to 84, from 68 to 90, from 65 to 82, from 64 to 75, on six different occasions.

"When I remained at home after breakfast, so that I had not my usual half-mile walk, the excitement was quite as great as after my walks on the six occasions noted above."

Botany was a science the knowledge of which Sir Robert naturally kept up from its relation to the vegetable division of the Materia Medica; but he was fond of it for its own sake, and he knew British botany well, his excellent memory enabling him to remember many even of the minuter characters which distinguish species from each other. He had a good herbarium, which was rendered more attractive than the ordinary run of *horti sicci* by the beautiful way in which the plants gathered by himself were dried and laid down on paper. He took a warm interest in the introduction into India of the cinchona plant; and by correspondence with Dr Gunning of Rio Janeiro, and in other ways, contributed largely to the scarcely less important introduction of the ipecacuan plant from Brazil into that country.

Sir Robert was always much interested in forestry, and he was in the habit of measuring the girth of any unusually large trees that he happened to see. This led him to remark that the measurements of large trees given in books were in general quite unreliable for purposes of comparison with each other, as no rule was followed in selecting the place of measurement, and thus one measurer taking two or three feet from the ground might bring out a result greater by several feet than another who measured the same tree

three or four feet higher. He therefore sought to establish the rule that all trees with stems of fair height should be measured at five feet up, as at this point the girth is in general not affected by the swelling of the buttresses below nor by the swelling of the bases of the great limbs above; but that in trees with short trunks the safest rule was to take the narrowest part of the trunk. These preliminary studies led to the entirely new and original observations, begun in his eightieth year, by which he proved the practicability of measuring not only the annual but the monthly rate of increase in the girth of trees. The results were communicated to the Botanical Society of Edinburgh in a series of papers. The extracts from his letters given here contain a summary of part of these investigations; also his descriptions and measurements of some remarkable trees in Scotland; some other botanical memoranda; and an account of his first visit to inspect a fossil tree in Craigleith Quarry, which he afterwards described to the Royal Society of Edinburgh. Subsequently he was mainly instrumental in getting this fine fossil removed to the British Museum, where it now lies.

ASAFŒTIDA PLANT.

"To A. C. 16*th April* 1858.

"Professor Balfour and I have sustained a fearful disappointment. One of the asafœtida plants, which for fifteen years have annually put out a profusion of root-leaves, but would not show a flowering stem, suddenly, in the beginning of March, shot out

a stem without showing root-leaves at all. It grew so fast, that in five weeks its diameter was three inches or nearer four, its height six feet, and its whole length covered with curious leaves and umbels of crowded little flowers, many of which had begun to open. All this took place during perpetual, chill, parching, northerly and easterly winds, cruel to human feeling beyond what I remember to have experienced; and yet the plant had glass only in front and above it, and no protection at the sides. But on the 13th April, the thermometer went down during the night to 22°, and poor asafœtida was blasted. It was a handsome and very curious-looking object, most remarkable as being the only sizable annual in vegetation at the time in the garden, but I don't suppose more than the lower tenth will be preserved. Balfour had, however, taken a full description of it, Walker had stereoscoped it, and Greville had painted it, so if only one umbel ripens its seed we shall have for the first time a complete account of the asafœtida plant, for Falconer's is not quite complete or exact."

SEEDS CARRIED BY THE GULF STREAM.

Journal. "*May* 30, 1866.—Dr Macdonald of Lochmaddy has succeeded in getting for me two of the West India seeds which the Gulf Stream transports to the shores of Uist, the *Entada gigantea* and *Dolichos vulgaris;* but he has not yet got the third, *Guilandina Bonduc*, for it is rare, and is so prized as a charm during childbirth that the midwives wear

the seeds set in silver, for the women to hold in their hands while in labour; and a husband, who had two, refuses twenty shillings for one of them, saying he would not part with it for love or money till his spouse be past childbearing."

IPECACUAN.

Journal. "*June* 27, 1870.—A box of ipecacuan plants arrived from Dr Gunning, of Rio Janeiro. Dr Thomas Anderson, botanist to the Indian Government, having been obliged to come home on sick-leave, got a roving commission to obtain the means of introducing this plant into India. It has recently been ascertained in China and India that ipecacuan, in very large doses, is a sovereign remedy for dysentery. This was stated by Marcgrav and Piso in their 'Natural History of Brazil,' published in the seventeenth century. But their mode of using it was lost sight of; and small doses, generally with adjuncts, became the universal rule. Early in the present century, Dr George Playfair, father of our University member, and an army medical officer in India, recommended, from actual trial, the restoration of the original method; but his excellent notice in the 'Edinburgh Medical and Surgical Journal' did not attract the attention it deserved. In 1831 the Madras Medical Board published conclusive reports of similar trials, made at their request by several medical officers of their Presidency. Still no impression was made even in India, although I pressed the subject on the attention of my students annually since a few years

after the Madras publication. Now, however, the system has become a *furore* in India, and the supply of the drug does not nearly meet the demand. The cause, on inquiry, proved to be that the plant has been all but extirpated in the Brazilian woods. Having secured the transplantation of the cinchona tree from South America into India, the Indian Government resolved to do the same for the ipecacuan plant; and, fortunately, this will probably prove a much easier undertaking. Some months ago I wrote to Dr Gunning, an Edinburgh graduate of 1846, who entered very cordially into the scheme. The first consignment of plants has just arrived at the Botanic Garden, consisting of roots well preserved in soil, which M'Nab, the curator, has at once cut into many pieces for multiplication. Lindsay, his head-gardener, had previously ascertained that young plants can be readily grown in this way; and I have seen to-day in the garden stove-house a hundred thriving young plants, from two to four inches high, all from little root-sections, planted in the beginning of January last, one of which is actually in flower. The undertaking, then, promises to be prosperous."

"*Aug.* 7.—To-day I accompanied Dr Thomas Anderson to the Botanic Garden. He was much pleased with the progress made with the preparations for propagating the ipecacuan plant in India. There are 80 well-grown plants, and there is promise of 400 more from the cuttings of Dr Gunning's consignment. In the nursery of the Lawsons, who have also been employed in the cause, we saw 120 plants well for-

ward, and most of them indeed ready for removal to their destination."

NOTES ON TREES.

Glenfeshie Forest. Journal.—"*Oct.* 22, 1862.—I had much conversation with Mr Mill's friend, Mr Micklethwaite, about forest matters. We lamented the rapid disappearance of wood going on throughout the glen by the annual cutting down of the primeval Scots fir. For though the tree must have propagated itself hitherto when left to itself, it will not continue to do so when artificially destroyed. In untouched parts of the forest young trees may be often seen. Their growth is very slow; the top shoot does not rise more than three inches in a year. The tree thrives at a great elevation; large trunks are found in bogs 1000 feet above the Lodge, which is about 1100 feet above the sea. In the alluvial soil at the bottom of the valleys the trees grow to a great size. The largest measured is 15½ feet in girth at 5 feet from the ground, and there are others near it which measure very little less."

Early Hawthorn. Journal.—"*April* 30, 1868.—In the Botanic Garden to-day I saw a hawthorn-tree in full flower, or rather past perfection, and a full week out. Mr M'Nab says it is the first time in the history of the Garden that the hawthorn ever was in flower in the month of April."

Spanish Chestnut. Journal.—"*Aug.* 6, 1877.—I visited a Spanish chestnut-tree at Ardgarten, Arrochar, previously well known to me for its mag-

nitude, but not yet so famous as it ought to be. When I was last at Arrochar, in 1867, it was a tall, stately, vigorous tree, 20 feet in girth at 5 feet from the ground, and not to the eye appreciably less for 20 feet upward, where its first division into branches took place. It is not now so stately, as some of its large upper branches have been blown down; but it is still a most imposing object seen among lesser but by no means small trees near it. Its base presents a graceful conoid fully 5 feet high, with many buttresses. At the ground round its abutments it measures 31 feet 7 inches; at 1 foot up, 26 feet 6 inches; at 3 feet, where the abutments come nearly to an end, 21 feet 9 inches; at 5 feet, 20 feet 6 inches; and at 6 feet, 20 feet. By Atkinson's hypsometer the topmost twig was 73 feet high. The central stem branch appeared to the eye at least 18 inches in diameter about 60 feet from the ground, and had been broken off at about 8 feet higher; so that when I saw the tree in 1867 it must have been about 100 feet in height. No such chestnut-tree has yet been publicly mentioned among the large forest-trees of Scotland, so far as I have yet found. Neither have I yet seen any trunk whatever so fine, taking girth and height together."

Trees at Dunkeld. Journal.—"*7th August* 1879.—On the 29th June of last year, Mr Macgregor the forester and I measured the largest and furthest north of the old larches at Dunkeld. At 5 feet from the ground it was 14 feet $9\frac{6}{10}$ inches in girth. On this occasion I found it to measure 14 feet $11\frac{5}{10}$ inches.

It has had the advantage, however, of one complete season of growth, and nearly six weeks of another: making allowance for this, the tree appears to have increased in girth by an inch and a half in one season, and therefore must be still vigorous. I also found a magnificent silver fir to be 14 feet 6 inches in girth at 5 feet from the ground, and 110 feet in height; and another near it, certainly 120 feet high.

"In consequence of discrepancies between the Arboricultural Society's measurements and my own, I very carefully remeasured the old oak and sycamore behind Birnam Hotel.

	Ft.	In.
Sycamore at 3 feet perpendicular on south side, .	20	2
„ 4 „ 6 in. „ „ . .	19	1
Oak at 3 feet perpendicular on south side, . .	22	1
„ 4 „ 6 in. „ „ . .	19	2½
„ 5 „ 9 in. „ „ . .	17	2½

"The measurement of the sycamore is rendered difficult by the tree being on the verge of a terrace, so that the north face is fully four feet lower than the south face; and that of the oak, by having many considerable humps, besides very sloping buttresses. The 4½-foot measurement passes over a small hump. I could not use a 5-foot regulation level, as at this elevation there is a very large hump. At 5 feet 9 inches, the narrowest point, the trunk is quite clear."

Newbattle Beech. Journal.—"*Nov.* 11, 1879.—Measured, with Mr Moffat the forester, the famous beech at Newbattle. At 7 feet high we marked it all round with zinc paint; the girth is 18 feet

8 inches. Higher up it seems rather narrower; the swell under the branches begins at 12 feet; at 13 feet is the first considerable branch, but the great limbs do not arise till several feet higher. Its great branches dip down all round, taking root, acquiring fresh vigour, and rising again. By careful pacing I found the circumference of the whole to be 130 yards. The height of the tree I judged to be at least 100 feet; the structure of the upper trunk is complex and most picturesque; its numerous enormous limbs have a multitude of branches, and these ramify to multitudinous twigs like a vigorous young beech. Everywhere there is sign of active life and growth. It is by far the grandest tree I have ever seen."[1]

CRAIGLEITH FOSSIL TREES.

"Dr Beddoe, Clifton. *9th May* 1873.

"I have begun (after an ephemeral fever) to force on convalescence, as in the days of my youth, by compelling my unwilling soul and limbs to take hard exercise; and in pursuance of this plan I spent yesterday in walking two miles to Craigleith Quarry, two miles back, and in much scrambling to, from, and at the bottom, 200 feet down, studying minutely the attitude, size, and form of two magnificent fossil trees which have lately been laid bare. Witham worked the characters well out upon the fossils first found

[1] On the 29th July 1885, we found the girth to be 18 feet 10.6 inches, showing the rather small growth of $2\frac{6}{10}$ inches in nearly five seasons. The circumference of the mass of foliage is now 140 paces. The tree is in splendid condition.

there in 1826-30, but he left plenty of matter untouched.

"One of these new trees is 10 feet in its narrowest girth near the bottom; and the other, whose top only now appears in the very floor of the quarry, is rather over $2\frac{1}{2}$ feet in diameter every way.

"All the surface of both trees is covered with a very thin crust of shining caking coal of great purity, and the whole of the interior consists of a very hard ferruginous dolomite, with some free charcoal in very fine powder. The structure is so minute and perfect that it can be successfully examined with the compound microscope, and it is found to be that of the coniferous trees."

TREE-MEASUREMENTS.

"To A. C. 23*d October* 1879.

"Some time ago it occurred to me that the minutely accurate ways of chemistry and physiology might be applied to the measurement of the girth of trees with profitable results, to be yielded at no long interval of time. Two annual growing seasons have passed since I began taking measurements to the 1-20th of an inch; and I find it easy, observing the precautions laid down in my Botanical Society paper, to obtain precise and trustworthy results. Already I have ascertained,—(1) that evergreen trees, in our climate at least, make no growth of wood in winter; (2) that the growing season here is confined to May, June, July, August, and September; (3) that when a very backward spring cuts off the month of May from

the growing season, all trees show the effects more or less in a reduced increase of girth. I promise myself good results, too, if I be spared to make a third year's measurements, for estimating the age of trees from their rate of growth. Already I think I have made out that the Fortingall yew must be 3000 years old, and, as De Candolle predicted 43 years ago, 'the most venerable specimen of European living vegetation;' but you shall soon judge of the evidence to that effect, for my paper on this special question has been printed off, with 'illustrations by the author!'"

"*Jan.* 22, 1880.—The following are some of the results on the growth of wood arising from the very unfavourable summer and autumn of last year. Observations on eleven trees with deciduous leaves present the proportionate growth in girth of trunk as 59 in 1879 to 100 in 1878. Those on seventeen pinaceous trees give a proportion of 80 to 100. The cause is not far to seek. In the first place, last year the buds did not unfold themselves till June, so that a fifth of the customary growing season was lost. Secondly, the mean temperature of the five growing months was five degrees lower last year than in 1878. Thirdly, there was a great reduction of sunshine, which every one here noticed, but we have no record of Edinburgh sunshine. The apparatus at Greenwich, however, indicated 951 hours of bright sunshine in the five growing months of 1878, and only 709 in 1879.

"It would be interesting to discover whether your evergreen species in India make wood in the cold

season: here they do not out of doors; but my very few observations on tropical evergreens in the 'palm-house,' and on half-hardy evergreens in the 'cool houses,' indicate growth here equally in winter and summer."

"*July* 1, 1880.—Doubts have been expressed as to the uniform relation of rings of wood to age, even in trees inhabiting the temperate zone; but I have hitherto failed to meet a single instance of non-conformity, and I am inclined to conclude that those who think they have met with exceptions were not aware of the conditions to be observed for correctly counting the annual rings. For example, two rings may approach so close for some space that to the naked eye they appear but one; nevertheless, that there are two may be seen either with the help of a magnifier, or by following the supposed single ring right and left to where it is fairly seen to be double. In the next place, the outer rings of aged trees are so confusedly defined that it is impossible to count them with the least approach to accuracy. Thirdly, in some trees, such as sycamores, the edges of the rings, at least in old trees, are apt to be ill defined throughout.

"But when counting can be done satisfactorily, the result has always corresponded with the age when correctly known; and I may add that I have several times been able to correct, by reference to the rings on sections, vague opinions as to the age of remarkable trees. Evergreen trees follow the rule as steadily as leaf-shedding trees.

"These remarks apply, of course, only in a climate such as ours.[1] But before admitting a different rule to prevail in the tropics, more careful observations are required than any I have yet been able to hear of. I presume that in the tropics the dry season, by destroying the leaves of deciduous trees, will arrest wood-making, just as the winter's cold does here. But how as to evergreens? This much I have made out,—that in the palm-house of the Botanic Garden young exogenous evergreen trees add to their girth from October to May, as well as from May to October. But do they form more than one ring in the twelvemonth? I cannot tell, for I have had no opportunity of felling and sectioning one of them.

"Captain Wood[2] supposes that a double ring may be found annually in those leaf-shedding trees which enjoy a double season of leaf-growth in connection with the rainy season. Such may be the case; but remember that evidence of such growth, simply by differential measurements, is no proof of the formation of two rings of wood in one year. This can be ascertained only by carefully counting the rings of trees whose age is positively known; and as the same influence operates every year, the number ought to be double the age, should Captain Wood's supposition be correct.

[1] It appears from recent observations by Dr A. L. Child and others, that in Iowa and other parts of the United States the concentric rings do not necessarily represent annual growth, and that in some instances the rings are more numerous, in others fewer, than the years of age of the trees.

[2] Indian Forest Department.

"Now it is possible that the very fact of a double growth each year may render the counting of rings very difficult. On the only occasion on which I have had a section of a tropical tree to examine, the counting was impossible. This was a fine section of a mahogany-tree from Calcutta. I cannot well describe the complex appearances. At a little distance the rings looked broad and not indistinct. But on closer inspection there were so many intermediate lines of demarcation, without any one of them being sharply defined, that I was obliged to abandon my attempt to count them."

EFFECTS OF SEVERE FROST ON TREES.

We are indebted to Dr Charles Stuart of Chirnside for the following letter, addressed to him by Sir Robert in the last year of his life. In forwarding it, Dr Stuart writes of his former teacher in terms similar to those which we have heard expressed by many old pupils: "Your late father, not long before his death, wrote me this letter, which was interesting as showing how active was his mind even at the close of his career. I always look back on your father as one of the most representative Scotsmen I ever knew. A student all his life, he brought a great intellect to bear on every subject he took in hand, and he was *facile princeps* of the University of Edinburgh at its very best time."

"EDINBURGH, *July* 2, 1881.

"MY DEAR DR STUART,—I observed with much interest your observations in the 'Scotsman' news-

paper, on the effects of last hard winter on tree-vegetation in your neighbourhood. Will you allow me to suggest that these facts deserve much less perishable record than they can receive in a newspaper; and that now, when the progress of vegetation generally will enable you to see how far your anticipations of permanent damage have been verified, you should prepare a careful account of all you have observed, whether of injury or of immunity, for the Botanical Society?

"In the leisure of my retirement I have been paying some attention to the winter's effects on our trees, evergreen and leaf-shedding, and I am sure that a series of such observations would be of great service to foresters and forest-owners, if made extensively over the country, and supplemented with information as to climatic peculiarities and exposure.

"Here the frost never was nearly so intense as in Tweeddale. Nevertheless it was several times at or a little below 0° F. in our neighbourhood. Large-leaved evergreens have suffered severely, also several of the recently introduced Pinaceæ. Others have suffered not at all, and among these the most stubborn has been *Cupressus Lawsoniana*. A few leaf-shedding trees have also suffered, but only those known previously to be tender, such as *Robinia pseudacacia* and *Platanus occidentalis* (*P. orientalis* vanished long ago).

"But the most remarkable fact is, that this summer by far the majority of our leaf-shedding forest-trees show extraordinary vigour, density of fine foliage, and

profuse inflorescence. The common oaks are in many places round Edinburgh shabby; but others are very healthy; and some observations lead me to conclude that where damage has occurred, it is due, not to the hard winter, but to countless grubs that develop into little grey-coloured moths. Among exotic trees the Hungary-oak (*Q. pannonica*, var. *conferta*) has shown a determined defiance of the two last cruel winter-frosts. Its trunk for three years past has increased in girth annually rather over an inch and a half, and its foliage both last year and this year has been very fine. It is a beautiful tree, and deserves far more attention than it has yet received.

"I wish you would make inquiry what has been the fate of Lawson's Cypress and the Hungary-oak in your ill-used neighbourhood.

"In the beginning of last year's vegetating season, Mr Boyd of Ormiston, in Teviotdale, thought that some oaks near him were to be utterly destroyed. The result was that no branch threw out any buds, but spray broke out on the trunks. How is this with the oaks, of whose fate you were apprehensive?

"I have a great deal more to say on this subject than I can write. In truth, writing is a penance, owing to sad irritability of my eyes. So I wish very much you would come to town some day soon, dine and spend the night with us, and give us next forenoon till your 2 P.M. train from this, so that I could show you my chief observations in the Botanic Garden, which is now very lovely.—Yours most truly,

"R. CHRISTISON."

Dr Stuart writes to us on the 31st August 1885, that although many of the oaks in Berwickshire injured by the frosts of 1880 and 1881 have of course been cut down, some are still standing, quite dead, and many much crippled, killed 40 feet down. The *Quercus pannonica* and *Cupressus Lawsoniana* were uninjured; and the *Abies Nordmannia* and *Pinus nobilis* proved the hardiest of introduced conifers. Temperatures of –18° F. and even lower seem to have been well authenticated in Berwickshire. It is worthy of note also, that notwithstanding the fine foliage observed by Sir Robert in the trees near Edinburgh in 1881, the increase in girth of 60 trees measured by him was much less in that year than in 1878, the year preceding the great frosts.

CHAPTER XI.

SPEECHES, ADDRESSES, LECTURES, AND ACCOUNTS OF SCIENTIFIC MEETINGS.

BRITISH MEDICAL ASSOCIATION, 1858—BRITISH ASSOCIATION AT ABERDEEN—SOCIAL SCIENCE ASSOCIATION—PLATFORM SPEAKING—LONGEVITY IN THE PROFESSIONS—BRITISH ASSOCIATION AT DUNDEE—BRITISH MEDICAL ASSOCIATION, 1875—NEW EDINBURGH INFIRMARY.

We give Sir Robert's account of certain addresses and speeches he delivered, and of the part which he took at several meetings of the British, British Medical, and Social Science Associations; and also his criticisms of these meetings.

On some of these occasions it will be seen that he had to make very great efforts when scarcely recovered from the effects of fever, and that in these he succeeded in a wonderful way,—the weariness and fatigue, which we ourselves have often seen to be so great in him as apparently to preclude all hope of his discharging any public duty, passing off under the necessity for exertion, and without any subsequent reaction. His vitality was conspicuous during the celebration of the

fiftieth year of his professorial life on the 23d February 1872, when at the age of seventy-five he was kept on the move for eighteen hours; and again at the opening of the New Infirmary, when at the age of eighty-two he addressed a crowd of some 12,000 persons in the open air, his voice being heard by all.

In these accounts, he himself deprecates the idea of his being thought egotistical, as he was writing only to members of his own family or to intimate friends. His object was simply to state things as they occurred, and to give his own impressions and opinions as intended for them alone. But his accounts are so graphic, and his trenchant criticisms convey such useful lessons, that we have no hesitation in making them public.

BRITISH MEDICAL ASSOCIATION AT EDINBURGH.

"To A. C. 1*st August* 1858.

"At the meeting of the British Medical Association there have been 160 doctors from all parts of England, some even from Devonshire and Cornwall. They all seem, and, I believe, positively are, delighted with their meeting. It may well have been so, for we are now enjoying the fourth day of most delicious warmth, gentle breezes, clear atmosphere, and bright sunshine. The exhibitions of oratory were lauded to the skies, both at the time and afterwards; and my own, I hear, was considered the 'top-sawyer' of the whole batch,—but I daresay each actor has been told the same. However, I really do think there was most information in mine—unless, indeed, I except Syme's

masterly clinic, which was really admirable. The Englishers were also in raptures with the dinner; not with the corporeal nourishment supplied,—which was so disgraceful that, among other criticisms, I had to order off the table the first two bottles of champagne which were offered me, — but with the 'feast of reason and flow of soul.' I have a horror of after-dinner oratory as a thing I know nothing of. But somehow, though I did not know what the toasts were to be until the saddle of mutton was put on the table, I never gave myself a moment's concern about the matter; I caught some hidden inspiration, and astonished at least myself—which, you know, it is not easy to do. You will guess the surprise of the Southrons when, without any previous intimation, after the toast of the British Medical Association was drunk with tremendous cheers, three members joined the chairman and struck up 'Fill the Shining Goblet.' The wretches actually encored that long quartette; and it was only because I was chairman and a tyrant that they did not get it again. Maclagan, too, at a later period gave them his eulogy of 'Plain Cold Water,' perhaps the happiest of his effusions, with the exception of 'The Battle of Glen Tilt.' You cannot imagine anything more frantic than that company. At coffee afterwards, at half-past eleven, an unknown Liverpudlian—a little *em-port-é*—shook me by the hands, and, with truthfulness evidently winy, exclaimed, 'Oh, doctor, I see now how your countrymen thrive wherever they go. You are a devilish deal cleverer than we. Why? because, besides all else, you

have given us a treat such as we never got before. Why, I tell you what it is, doctor, we might visit every town in all England, and we could not get a chairman and three of his townsmen to give us such a feast of music.' Now this is all very egotistical, nationally and individually egotistical. Nevertheless, you will probably expect to hear something of this meeting, and I can't help telling you incidents as they befell and facts as they are."

BRITISH ASSOCIATION, ABERDEEN, 1859.

"To D. C. 19*th Sept.* 1859.

"You have often heard me express a high opinion of the Aberdonians. They are a clever race; and they proved it on this occasion. Every department was in prime order.

"Prince Albert's lecture was admirable. The matter showed him to be a deep and sound thinker. The manner was perfect. He has a clear tenor voice, and made himself heard everywhere in the room without visible effort. His gestures were limited and composed, natural and unaffected; and they increased to animation in the utterance of his best passages, in such a way as irresistibly to convince the audience that his materials were his own. I have a much higher opinion of him than before. The Court nobility, who are said to 'snool him sair and haud him doon,' are most of them greatly his inferiors; and as to 'Punch,' he is decidedly an ass—for once. There was no division of opinion about the Prince

throughout the large audience, many of whom I conversed with afterwards on the subject.

"The conversazione was no stupid affair, but a brilliant entertainment. I was only once brought to a stand-still, between two exaggerated crinolines in a crowd of them; for they did not yield elastically, according to all previous experience, and the outer covering of one fair lady got completely round my legs and arrested all movement for two minutes and a half, the good lady being all the time unaware that she had anything to do with it. It was interesting to look out for new faces of old friends, and hard work it was to recognise thirty-year-old faces converted into seamed countenances fringed with white hair and borne on bowed shoulders. Among these was Dr H———, a sort of Russian spy. I proposed to some friends to toss him in a blanket, together with the be-starred J———, who made the Cronstadt infernal machines; but we could not muster hands enough, for J——— must weigh seventeen stone.

"I was made Vice-President of both the Chemical and Physiological sections. In the former a French Abbé, a sort of advertising van, who slipped from one section to another, with something to say in all, produced a preserved milk, admirably kept, for six months (he said), which, in testimony of *l'union éternelle entre la France et l'Angleterre*, he begged to present for *de drink of Scottishmans*. We expected to be told the process. But no—it was *un secret*, not to be told by him; and yet the bottles bore that the process was patented in France and England, and

therefore it ought to have been fully and workably given to the Patent Office. Had I known this in time, I should have objected to any notice being taken of it, as the British Association ought not to be made a *muraille d'affiches* for wandering touters.

"In the Geological section I had only time to hear the close of a paper by young Geikie, and very warm commendations bestowed on it from all quarters. In the Natural History section I heard Gould prove that there was no true pheasant in India, nor any but hybrids in Britain; but that there are seven true species, which he illustrated by beautiful 'skins'; that one of these species had a tail four feet long, and another a six-foot tail measuring from rump to tip, &c., &c.

"In the Physiological section a great crowd were listening to a paper by Lewes, an amateur physiologist, upon the functions of the nerves, read by Huxley. In the subsequent discussion, Bennett successfully and pungently proved that Mr Lewes was in a mess of errors through not understanding the use of terms sanctioned alike by physiological and ethical inquirers for nearly a century.

"Next day in the Chemical section there was the 'whittret' Abbé Moigno again giving an account of recent French discoveries in photography, by which he maintains indelible prints of any colour may be obtained.

"On Saturday morning, before leaving, I was surprised with the intimation that my section intended on Monday to take up the subject of scientific

evidence in law courts, with the view of seeing whether something could not be done towards raising it from the mire into which it has been thrown by recent events. The mover in this matter is Mr Vernon Harcourt, an accomplished chemist. He was anxious that I should remain for the discussion, and perhaps no one could give so much information on the subject, but my engagements compelled me to leave. Immediately on my return home I wrote a long letter to Mr Harcourt on the subject, and sent him copies of my College of Physicians' address in 1851 on Medical Evidence; but all that I have heard is that the subject was taken up, and a committee named—I one—to consider the matter."

SOCIAL SCIENCE ADDRESS.

"To A. C. *2d November* 1863.

"I got into a famous mess with the Social Science Association. The executive in London did me the honour in midsummer of requesting me to be President of the 'Public Health' section. For months I could settle on no subject more than another for my address; at last I gradually settled into the theme which the newspapers enlightened you on. But I was very late in beginning; and almost immediately I fell into one of my incomprehensible febriculas, just two days before the opening day of the Association. This attack was a perfect mystery to me. For a long time previously I had been in perfect health. Various friends inquired what caused my illness; to whom I replied that I knew no other

cause than previous strong health, plenty of country air, and very regular living. I had three days of fever, and two days more of bed; and all the time I was alternately snoozing, groaning, and scribbling the address in bed. Two days of convalescence enabled me to try my strength as President of my section, and next morning the address came off. It took an hour and a half to deliver, in a room that held 2500 people. Nevertheless I had no difficulty, and thought I could go on for the other hour that Lord Brougham expressed his willingness to grant me. It was time, however, to come to an end; for when I stopped, my pulse was at 140. Strange to say, I sustained no harm, and did much professional and other work in the afternoon and evening.

"The address seemed to tell. I was not satisfied with it when it was all written; but the attention of my audience for so long a time, and the compliments which have been paid it from many quarters, have reconciled me to it. You must not judge it, however, from newspaper reports, as they left out the most important part almost entirely—that about the influence of town life in increasing the mortality from tubercular diseases.

"I had no idea that the effect of town life on health, mortality, and the human constitution was so fearfully great as it proves to be. It gives a terrible look-out before us; and when I got at the results from Stark's figures, I was startled, I assure you. I wish that others would be as much so by my telling of it."

FIRST APPEARANCE AS A PLATFORM SPEAKER.

Journal. "*Nov.* 18, 1867. — I have become to-day, for the first time in my life, a platform public speaker—a vocation which I dislike, and for which I feel no natural call or aptitude. But the cause which summoned me forth was that of the University, whose call I can never disregard. The purpose of the meeting was to consider Dr Begg's suggestion, that the street which is to displace North College Street shall be widened so as to form a 'Place' rather than a street in front of the Museum of Science and Art and the north side of the University."

LONGEVITY IN THE PROFESSIONS.

Journal. "*Feb.* 25, 1868.—Apart from my class and my patients, I have been living the life of a recluse, and all to get up an address which has been lying between me and my comfort for many a long day, and which I must deliver to-morrow evening in the Queen Street Hall to the Associated Debating Societies of the University as their Honorary President. I was long at a loss what topic to choose; but at last I tumbled upon rather a new, at least a long-untrodden field—the question of longevity in the learned professions, as compared with other occupations of persons in equally easy circumstances who do not much overtask their brains. I found that, so far as somewhat insecure statistics will sustain the inquiry, all the learned professions, taken each *in cumulo*, appear, except the clerical profession, to impair the

longevity of their members; but that this rule does not hold in the upper walks of any profession, though the head-work is probably greatest there; and that the cause of the diminution of average longevity among them is not, as one might expect, an unusual proportion of cerebral diseases. Hence I come to the conclusion that the injurious cause is not essential, but something accessary, and therefore capable of being eliminated. This accessary, I infer, both from statistical inquiry and from experience as a physician, is mainly the neglect of exercise.

"I was provoked to find how vague and untrustworthy is the aid which our elaborate and costly returns of population and mortality have rendered me in this inquiry. There is always some collateral circumstance neglected, while other unserviceable as well as serviceable points are minutely got at and recorded. I had got my leading arguments, however, tolerably well based both on statistical and empirical facts, and had worked my paper, or address, into a satisfactory shape almost to the end, when the secretary, walking in upon me respecting another matter, let me know for the first time that the Debating Societies of Edinburgh have widely issued invitations to the ladies! What am I to do? with such a subject, worked up for the masculine understanding alone? with phrases, ideas, and arguments polite enough for male ears, but dubiously decorous for those of the fair sex, according to my fastidiousness on that head?

"26*th Feb., the evening after the conflict.*—I had no

time to alter my MS.; but I cobbled it while delivering it, and in general successfully. That it was well received I do not doubt; for I saw no signs of weariness, though my sermon lasted an hour and fifteen minutes. Much of it was level to all ordinary understandings, to be sure; but there were some staggering statistical calculations which only the initiated could follow in the brief form in which I had to put them. The ignorant, however, only looked all the wiser the more they were puzzled, and plainly received *omne ignotum pro magnifico.* At the close I soft-sawdered the ladies by telling them how it was that I had chosen so masculine and to them uncongenial a subject as advice to their husbands and husbands-to-be how to take due care of themselves in the exercise of their callings; and that had I been aware of their complimentary curiosity to hear what I had to say, I would rather have volunteered them an address for themselves, and told them how best to diet their husbands, or to drill them, or to poison them when needful. And so the ladies went away, content that I could have amused them if the occasion had been suitable."

BRITISH ASSOCIATION AT DUNDEE.

Journal. "*Sept.* 5, 1868.—The Dundee people have met the Association, as might have been expected of them, with magnificent means of accommodation, and extensive hearty popularity. The whole town seems to be in holiday, standing in numerous crowds on any vantage-ground to catch a glimpse of the scientific

lions. Last evening, to a grand crowd of 2500, of whom more than half consisted of ladies, the Duke of Buccleuch delivered a plain sensible address without notes; and Sir Roderick Murchison and Mr Phillips, in moving and seconding thanks to the chair, reproduced the usual set phrases of Association compliment."

"6*th*.—I have some difficulty in standing the 'claw-me-and-I'll-claw-you' system of the Association big-wigs, introduced at the beginning, and still kept up by them in precisely the same phraseology as in 1834 and 1850. It is evident, also, that in the sections not a few men give communications previously produced elsewhere, and designed rather to make themselves important than to publish useful information; and I cannot argue down a conviction that some of these betray by their looks and manner that their statements are not trustworthy.

"One chemist startled the meeting with the homœopathic minuteness of his analyses, and their downright contradiction of the results of another chemist with whom he was at feud. I hinted my doubts of this minute analysis to pawky Paraffin Young at my elbow. We wondered when or how this innovation on the methods of the old chemists of our young days came in; and at last he accepted my proffered explanation that the new creed came in with the adoption of the gramme and litre in British chemistry, in place of the honest old English grain and pint.

"A paper was read in which the author, who had been driven from a former confidently maintained

doctrine that coagulation of the blood depends on evolution of ammonia, now laboured to convince the section that the real cause is 'pressured evolutions of heat.' In this way he proposed to account for the deposition of fibrine in the extreme vessels to produce tissue. For, said he, in the extreme vessels the blood-salts crystallise, giving out heat, under which, and the pressure exercised upon the blood from the heart, the fibrine separates by coagulation. After half an hour of this, Dr Davy, in a quiet affectionate tone, begged to ask whether the author had seen the blood-salts crystallised in the extreme vessels; but he could not get a direct answer.

"A specialist read a paper to show that laryngoscopic examination of more than 4000 throats had proved to him that in eleven per cent of Europeans the normally erect epiglottis lies horizontally on the glottis; that in such cases, instead of being flat, it is arched so as to leave a horizontal aperture between it and the glottis, directed backwards of course, but so narrow that it cannot permit air to enter and escape very freely; that in upwards of 400 persons of the negro and dark Asiatic races he found this anomalous structure constantly, without exception; that persons who have this structure of the epiglottis cannot sing tenor, soprano, or contralto, because for such voices it is necessary that the sound issuing through the 'rima glottidis' shall, by means of an erect epiglottis, be thrown forward at once upon the anterior portion of the roof of the pharynx and posterior part of the hard palate; that the anomalous form, by causing the voice

to impinge on the posterior pharynx, and thus reverberate in the pharyngeal cavity, causes the bass voice; but that all such persons, owing to the narrowness of the epiglottal aperture, are prone to laryngeal disease, bronchitis, and asthma, and consequently are short-lived;—nevertheless, that by attending to all these matters, and discovering the 'abnormal' or pendent epiglottis in time, *the defect may be cured by fit treatment.*

"This is all very new if true. Dr Davy asked how he thought it possible for any man to breathe through the narrow chinks represented in the drawings; another member asked whether he was not aware that the negroes, who he asserted had all 'pendent' epiglottis, are nevertheless a long-lived race; a third inquired whether negroes and Hindoos had all bass voices; and a fourth begged to be favoured with the 'fit treatment' which was to cure this fearful new epidemic. I intended to follow by stating that I had a personal reason for putting the question,—which I was to put in the strongest low D I could muster,—whether the author meant to say that all men with bass voices were short-breathed and short-lived; and if he answered yea, I meant to challenge him on the spot to run a 200 yards race, or one to the top of Dundee Law. But such a sharp fire arose upon him that I could not wait, having a professional errand four miles out of town. Next day I was upbraided for not putting my question, as it only required some such query to dissolve the debate in a laugh.

"In striking contrast were the papers of Professor

Ogilvie of Aberdeen on the structure and arrangement of the extreme biliary vessels in the liver; and of Turner on the stomach of the pilot-whale,—very curious, clearly told, with the earnest ingenuous manner of truthful men who had no object of personal vanity in view, or any other aim than to advance anatomy and inform their hearers.

"At the introductory meeting an incident occurred which caused for a time a great turmoil. Sir David Brewster, after travelling seventy miles from Kingussie and snatching a hasty scanty meal, went straightway to the platform of the crowded, hot, choky Kinnaird Hall, and there sat only a few minutes, when he was observed to become pale and giddy, and fall down on the floor in a complete faint. Bennett, Balfour, and Dundee Gibson were at once beside him, and other medicals too, when ——, a brother never remarkable for modesty or backwardness, rushed among them, and, though a little man, squared them all off with his elbows, exclaiming, 'Stand aside! I am a medical man! Air! air! water! water! a penknife! a penknife!' to cut, it appears, not Sir David's throat, but his shirt-collar.

"The Greeks, however, gained this battle of the doctors over the body of Patroclus, left —— empty-handed, and carried off Sir David to a side room and soon made him all right again. There was great agitation in the crowded meeting, and with reason; and Sir Roderick Murchison did not mend matters by intimating to the crowd that Sir David Brewster had just had a fit!"

BRITISH MEDICAL ASSOCIATION ENTERTAINMENTS.

"To Dr Beddoe, Clifton. 11*th June* 1875.

"I am well and lively now: I pray I may be equally so during the first week of August. There is small chance of that, however, if I undertake all which some wiseacres here would lay down for me. I mean neither to give nor to receive breakfasts, and to have no luncheon-bar: that English practice of perpetual heavy lunching is an abomination to me,—a *Religio*, in short—*i.e.*, as you know, a thing to be religiously shunned. I shall give a dinner to some fourteen good men and true on every day but that of the Association's own dinner. Now even this, with the racket of variety and dissipation from morning to night, will be a severe enough trial to the human constitution of a being commencing his seventy-ninth summer. Anything more would end in (unintentional) suicide, or more correctly, in murder. So that's settled flat."

BRITISH MEDICAL ASSOCIATION MEETING.

"To D. C 7*th August* 1875.

"As there was no hitch anywhere, either on my part or on that of my most zealous and able co-adjutors, the whole meeting has been to me a source of almost unalloyed pleasure. I wish you had heard the preliminary church-service in St Giles'! Dr Alexander's sermon was appropriate,—yet not too much so,—classically composed, and, I should say, a very superior specimen, which the English ears of the majority of his audience would take in approvingly. The choir, thirty-two in number, fortified at

my request chiefly from St George's, performed, with the support of a small movable organ, choice hymns, a 'Te Deum' anthem, and—venturesome attempt!—'The Heavens are telling.' Altogether the service was most impressive; and I only wish, for the interests of true religion, that our Scottish Church could make, or rather would make, her service always and everywhere equally so.

"My address was too long; but I could not help that: neither am I sorry for it, because it is not too much drawn out on any topic. I had many to touch on; and several good judges have told me and others that they have got many things to think upon from it, which was my object."

SPEECH AT OPENING OF NEW INFIRMARY.

"To Dr Beddoe, Clifton. 30*th November* 1879.

"I daresay you must have been surprised at my rashness in agreeing to make a speech at the age of eighty-two at the Infirmary inauguration meeting to 12,000 people in the open air. I trusted to the adaptation of voice acquired during my ten years' service as a volunteer, and had the satisfaction of being told by many of the audience that I was the only orator who was distinctly heard everywhere. But I could see that it was so, and could feel that the voices of my friends were lost in space not far in front of their lips. There is something penetrative in a bass voice which is not easily understood; but I have long observed that your *basso profondo* is a distinct and easily heard speaker."

CHAPTER XII.

NOTICES OF CONTEMPORARIES AND FRIENDS.

OLD COLLEGE FRIENDS—LORD JEFFREY—PRINCIPAL LEE—LISTER, AND CHAIR OF SURGERY—LYON PLAYFAIR AND CHEMISTRY CHAIR—SIR DAVID BREWSTER—GLADSTONE—CARLYLE—GOODSIR—DISRAELI—SYME—MAX MÜLLER—DUKE OF EDINBURGH, ETC.

THE following extracts are taken from Sir Robert's notices of friends and contemporaries, principally to illustrate his apt, kindly, and at times playful way of describing them, or incidents in their lives which came under his knowledge. Many of his most intimate friends were naturally his brother professors; and it is well here to mention one never-failing characteristic in his intercourse with all his colleagues—that however much he endeavoured to secure for the University the men who, in his belief, would make the best professors, he cordially accepted as colleagues the successful candidates, whoever they might be, and gave them active support when he thought they were not meeting with fair-play from the Senatus or from the public.

A letter to one of his old College chums we give as

a good example of Sir Robert's easy epistolary style in friendly correspondence. It has a melancholy interest also, as showing the sad fate which befell most of the happy band of contemporary Infirmary resident officers within five-and-twenty years after they separated.

"EDINBURGH, 17*th February* 1846.

"MY DEAR O'BRIEN,—The wear and tear of time, and the world's crosses, must have left you the same good-natured soul as ever, that you write me a second letter from the Far West without complaining of having got no answer to the first. And yet, had you done so, it would have been 'grumbling when you had no needs.' For I did send an answer last summer, and by a special messenger too, intrusting it as an introduction to Dr Simpson, the head of the late deputation of our Scotch Kirk to its children in the American wilderness. But he, blinded by the smoke of the incense offered him everywhere, could not, or at all events did not, find you out, and so brought back to the Old World all my tender reminiscences, which I will now try to send on a second voyage in quest of you—none the worse, I hope, for a New Year having glided past in the interval.

"And first, in obedience to your wishes, of myself. I am just as long, as lathy, and as purblind as when you left us. I have the same wife as ever, and the same three knave-children, two of whom have lately changed their boyish treble for the family bass. I am as volatile at heart, too, despite my grave looks, for I am never happier than when trolling a chorus,

wandering down the channel of an angling stream, or trying my speed against time or a comrade up a Highland mountain. I would fain even think myself no older. Indeed people tell me they know not one of my age so young. And I lately overheard in company an old lady of eighty say in a loud whisper to another dear old octogenarian, who seemed to have been telling who I was,—'What! that Dr Christison? That's a laddie!' But, let me own to you in confidence, I do find it more shaking now to jump from the top of a dyke than when, on being locked in by Cullen, I leaped my Infirmary window at the sound of the dinner-bell; and I sometimes meet with a surprise in my country rambles when I forgetfully try, as of old, to clear a brook, and drop three or four feet short of my aim, in the middle of it. I have no reason to complain, however, seeing that six bad fevers, instead of finishing me, have left me what I am—able to walk five miles and better in an hour, and to reach the top of Arthur's Seat from the College gate in two-and-twenty minutes.

"As for the rest, I continue to enjoy substantial popularity as a Professor. As a physician, my success has hitherto been so-so. This last year it took a start subsequent to Abercrombie's death. Yet still it is, as I say, just so-so, which I have the vanity to charge to a constitutional disgust for the small arts by which I see others around me thriving in physic, and to the wet blanket which our brethren have always at hand for one who engrafts on the pursuit of medical practice the cultivation of medical science. And as

for science itself, you must not be astonished if you learn some day soon that the flattery with which you and other friends from north, east, west, and south will insist on poisoning my mind, has taken effect, rendering me so contented with the little I have done, and so forgetful of the laziness apt to creep on with the near approach of one's little climacteric, as to make me careless of the great truth that science never stands still.

"Here end my confessions; and next, touching our old friends, of whom I have to give you but a sorry catalogue:—

"*M.*—Donald of dogged memory—was the first to break up our little band. After a tedious illness, he fell a victim to the consequences of rheumatic pericarditis. *W.* had not finished his service as Fever Superintendent when the sudden death of an elder brother plunged him over head and ears in a country practice worth some fifteen hundred a-year. Nevertheless he found time to signalise his pugnacity by waging war against a brother doctor—a more 'fiery ettercap' even than himself—narrowly escaping a fight and immortality, only to fall soon afterwards more ingloriously by consumption, while in the full tide of prosperity and happiness. *C.*, whom you knew less intimately than the others, promised to do well in ——, but moped under some bit of ill-luck, took to the bottle for comfort, sank, like *W.*, into consumption, and followed him at no great distance. *Joe* became a hard-riding country surgeon—a life for which his sturdy frame and broad bottom

seemed singularly to fit him. But Joe, who, even in our Infirmary days, used to prefer of an evening a tumbler with a chum out of doors to our society, could not, in his forenoon rounds, deny himself the everlasting dram-bottle of the Border farmers' wives; their toddy-swilling husbands gave him further opportunities after dinner; *delirium tremens* joined company at last; and this year I have a fair-haired orphan son of his for a gratis-pupil. *C.*, with all his failings the only true genius among us, gave extraordinary promise when he first settled down after a long Continental absence: but his warm over-boiling temperament could not brook a disappointment; he sustained an attack of apoplexy, about the age of thirty-two, through chagrin at the failure of a favourite professional scheme that long occupied his thoughts; epilepsy ere long followed, and two years afterwards he expired suddenly in a paroxysm. *Ned Turner*, for some years a lecturer on chemistry here, and, during that time, my dearest comrade, to whom I have never found a successor, became, as you know, the chief support of the infant London University, won golden opinions everywhere as a chemist, a teacher, and a man; but, 'o'er-informing his tenement of clay,' fell slowly into obscure, irretrievable ill-health, and perished by inches of ulceration of the stomach and chronic pneumonia, in the prime of life and at the height of his celebrity. *S.* at one time promised, in spite of fate, to turn up a trump. Paternal influence obtained for him a good appointment under Government. But an ugly story,

implying a breach of trust in a money matter, put a sudden stop to his progress; a court of honour, which made inquiry into the truth, could do no more for him than *yellow*-wash him; and, after showing face here occasionally afterwards in a skulking way, he seems to have evaporated,—at least I no longer hear anything of him, or any one inquiring for him. *William Turner* still 'lives a prosperous gentleman' at Spanish Town, Jamaica. He has had a matter of three wives already; and four years ago, when in this country on a visit, he was very fat, uncommonly sedate, indifferent about music, a contemner of the prize-ring, and *minus* the hearty 'Ha! ha! ha!' which still rings joyously in my ear after five-and-twenty years' silence. 'Oh! quantum mutatus ab illo.' *Craigie*, poor fellow, after struggling up to a little practice, some popularity as a lecturer, a snug small income, and a great Queen Street house, having delivered himself of two thick, learned, ponderous, unpopular octavos, has become a shocking martyr to neuralgia and dropsy of both knee-joints, and has gradually become tied down in a great measure to his chair. . . .

"Isn't this a fearful chronicle, Lucius, of our merry band of Infirmarites? Oh dear! I have forgotten our *ollapod*, Curlie; unhappy Curlie!—his fate was perhaps the hardest of all. He died about twelve or fifteen years ago of chronic inflammation and softening of the spinal cord, attended for many months before death with utter helplessness and almost constant excruciating pain.

"And now for yourself and your wants. You are a lucky man to become Professor of Medical Jurisprudence in your old age—that is, if you like the subject, are still young enough to master it, and, above all, look to be well paid for so doing. There is no branch of medicine I ever tried to fathom which has given me so much pleasure, alike in the study and in the retrospect. For it is the only one belonging to strict medicine where great principles seem to stand the test of time and the advancement of knowledge. I wish I were beside you to give you a lift with a lecture now and then, when you are weary of a morning. But as I cannot do that, I have shown my goodwill by sending you a pound and a half of documents which relate to the subject, and among these a terrible long story touching the case you inquired about. I do not think that the evidence on the question has ever been so well collected before, and it seems to be fairly settled. I might have added copies of all my published medico-legal papers, but I was unwilling to increase unnecessarily the weight of my packet, judging that the papers referred to are accessible to you in the 'Edinburgh Medical Journal.' I will be glad to hear that my letter and packet have reached you.—I am, yours always."

In a letter to Dr Bright, dated 31st January 1850, on the last days of Lord Jeffrey, after describing his sudden illness and death in a few days from acute inflammation of the lungs, Sir Robert goes on :—

"Jeffrey's mind continued vigorous to the last;

his account of his illness perspicuous and ingenious; his love of conversation constant, so that he had always the better share of the dialogue even with his physicians; his diction copious, terse, and poetical. When left quiet, however, he was conscious of a tendency to wandering. On shutting his eyes he had constantly, he said, a book or newspaper before him. Now it was a political article in the 'Times,' powerful and brilliant in composition beyond conception. Again it was a sparkling review, not of his own, but in the 'Quarterly.' When he opened his eyes he saw through the book, but could read again as soon as he shut them. This was his occupation within a few minutes of his death.

"His brain weighed $51\frac{7}{8}$ ounces; the cerebellum alone $6\frac{7}{8}$ ounces. But they were congested; reduced to the usual degree of congestion, the encephalon in Lord Jeffrey could not have exceeded $50\frac{1}{2}$ ounces—the average, according to Quain and Sharpey, being $5\frac{1}{2}$ for the cerebellum and $49\frac{1}{2}$ for the whole brain—instead of the 62, 63, and 64 of Chalmers, Abercrombie, and Cuvier."

Sir Robert was very intimate with Principal Lee. He had a great affection for him, and delighted to show forth his somewhat quaint but dignified character in sundry anecdotes, of which this may be given as a specimen.

"The Principal was remarkable for his extreme restlessness in his office and in his domicile. As he once told me himself, he began life by becoming a

doctor of medicine, immediately afterwards had in his possession an offer of one commission as surgeon in the army, another in the navy, and a third in the East India Company's service, but ended by surrendering all, studying for the Church, and coming out as a parish clergyman. This early erratic course shadowed forth his future life. He was minister of Peebles, minister of Lady Yester's in Edinburgh, minister of the Old Church there, Professor of Moral Philosophy at Aberdeen, Professor of Moral Philosophy at St Andrews, Principal of the University of Edinburgh, and when in Edinburgh shifted his quarters so often, that it was believed no man in it had sojourned in so great a variety of houses. In reference to one of these changes, a former sarcastic co-presbyter, Dr Andrew Thomson, declared that 'if Dr Lee got into heaven, he would not be long there before wishing to get out again.' On one occasion Dr MacGregor of St Cuthbert's having heard this anecdote, added very happily, 'There would be no occasion for the Principal doing that; for are we not told, "In my Father's house are many mansions"?'"

Journal. "27*th August* 1855.—Before Lister went on a two months' visit to London and France, Mr Syme came out of the operating-room of the hospital one day with one lapel of his coat bloody; upon which he merely buttoned it up, with the stained lapel innermost, thus concealing all trace of his proceedings. Whereupon I called Lister's

attention to the superiority of the double-breasted coat over the single-breasted one of Quaker cut, which admits of no such adaptation to surgical circumstances, and advised him to come back with the double contrivance. He laughed good-naturedly, and replied there was no saying but he might come back with the double breast. He did so,—but I had no idea he was to bring back two hearts instead of one under it."

"To Mrs A. C. 17*th August* 1864.

"There is, of course, a keen competition for the Surgical Chair. Lister, one of the candidates, is a Londoner, who became a surgeon in our Infirmary, and four years ago was appointed Professor of Surgery in Glasgow College. He is a man of high education, quite a gentleman—amiable and modest in all his dispositions, a first-rate surgeon, a vigorous lecturer, and an inventive physiologist. With the advantage over his opponents of his sixteen years' 'juniority,' he is, in my opinion, the fittest man by a great deal."

Note.—Nevertheless he lost the election by the powerful influence brought to bear on the Town Council Curators in favour of a local candidate. He was subsequently appointed Professor of Clinical Surgery by the Crown.

"To A. C. 29*th June* 1858.

"The election of Dr Gregory's successor is over. Lyon Playfair, as you will see, has carried it against Anderson. I am very sorry for Anderson's disap-

pointment; but as I told a town councillor of note —who consulted me in 1844, when Gregory and Samuel Brown were the favourites—that the Chair should be given neither to the one nor to the other, but to young Playfair, I have no reason to be dissatisfied with the result.

"In the course of the contest, meeting Playfair in the street, I asked him how it was advancing. 'Oh,' said he, 'very well indeed; we have come to the stage of "mutual recrimination,"'—his share of which was twofold: 1st, That he had subscribed the London petition for opening the Crystal Palace on Sundays; and 2d, That for ten years he had abandoned chemistry, and become a mere man of business and frequenter of society in England. It was to be feared, naturally enough, that he might have got too much attached to the sort of life he had been long leading in London; but I do not think so. He has fine talents, considerable eloquence, uncommon energy and resource, and great chemical aptitude originally, which his London friends say he has kept up by private researches; and from a conversation I had with him during one of my railway journeys, he has admirable ideas of what is necessary to restore the ancient popularity of the Chemical Chair, without sacrificing the scientific character of the Edinburgh Chemical School."

On the death of Principal Lee in 1859, Sir David Brewster was quite unexpectedly appointed his successor. The announcement was received with some

consternation by the Senatus, because Sir David's rule as Principal at St Andrews had been by no means a peaceful one. Indeed the sharp tongue of Lord Cockburn had prophesied of him to one of the professors,—"You will find Sir David a most pleasing gentleman the first year, a nonentity the second, and in the third a very hell upon earth!" Very different were Sir Robert's expectations when Sir David was transferred to Edinburgh. He believed that his irritability had arisen mainly from disappointment because he had not attained so high a position as his talents merited, and that, with ambition satisfied and with the softening influence of age, he would show himself to be a wise and kindly gentleman,—and such proved to be the case.

Here is the general estimate of Sir David's character and conduct as Principal formed by Sir Robert towards the end of Sir David's career in 1868, followed by a notice of his funeral:—

Journal. "*Feb.* 5, 1868.—There is news to-day that Sir D. Brewster is very ill. He has not been at a meeting of Senatus since October, gave up some time ago all intention of coming to town for 'the season' this winter, and has several times been reported as rapidly failing. He now writes to our secretary in desponding terms, bidding the Senatus farewell in affectionate words, and evidently convinced he is on his deathbed. Sir David is the last remaining friend of my father and of my own youth. The turmoil in which St Andrews University was kept during his Principalship there, led to a universal dread that, with our

complex affairs for a basis, he would keep us in a perpetual state of war. I alone maintained this was a mistake, being satisfied there were too many of us whom he respected and who respected him; and accordingly, so it has been. This remarkable man, after living at feud all his life with those who came in close contact with him in matters of business, has proved, during the eight years of his Principalship here, a determined lover of peace, a wise ruler, respected by all his subjects, and in society a most delightful companion. Although in the course of my life I have been several times opposed to him in his wishes and objects, he had scarcely been among us when he took to me at once as his right-hand man in University affairs.

"15*th*.—This morning I accompanied a party of seventeen members of our Senatus Academicus, four of the University Court, and a deputation of the Royal Society Council,—thirty in all,—in a special train to Sir D. Brewster's funeral at Melrose. The day was bright, sunshiny, and cold, with two heavy snow-gusts, both of which we escaped while waiting the arrival of the hearse. The simple ceremony seemed to be thoroughly appreciated by the inhabitants, — even the little boys being silenced through mysterious respect. This, and the appropriate burying-ground close to the south wall of the west nave of the Abbey, made an impression on the mourners; so that there was none of that conversationalism which usually follows a dead man at a Scotch funeral."

"To D. C. 21*st December* 1862.

"I am glad you have made acquaintance with Mr Edward Ellice. I was much in his company for two days in his Highland fastness six years ago. He is a remarkable conversationalist, and I have seldom met with one who so agreeably ratified the proverb about iron sharpening iron; for he certainly made me at once as great a talker as himself—which it is not in every one's power to effect. I shall always remember with pleasure his charioteering me during a whole rough forenoon in the end of October through the finest part of his property. He will perhaps remember that I was no granter of propositions, and that I even abjured the authority of Sir David Brewster, who had pronounced scorings on black mica-slate at the head of the pass to Loch Hourn to be glacier-scratches. I showed him that mica-slate was too soft to retain any scorings long on its exposed face; that the scorings were not parallel with the line of the gorge, and that they were nothing else than the natural bed-lines of the slate strata. But I added, that if we came upon any large gneiss-veins traversing the mica-slate—for I had noticed some beautiful narrow ones previously—we might find glacier-scratches on them; and presently we did find them on a sixteen-foot gneiss-vein sloping down upon the very roadside, the scratchings being nearly at right angles to the spurious scorings on the traversed mica-slate."

"To A. C. 17*th September* 1862.

"Dr William Gairdner has been appointed successor to Dr Macfarlane, as Professor of the Practice of Physic in Glasgow. Gairdner has excellent abilities and great practical experience for his age. I think, too, he has no extravagant theories either about diseases or remedies to disturb his judgment and interfere with his gaining the confidence of his professional brethren. He has therefore many qualifications towards attaining his grand aim—the establishment of consulting practice in Glasgow, where hitherto there has been nothing of the kind."

"To A. C. 3*d August* 1862.

"Dr Maclagan will be Traill's successor, and Traill will be soon forgotten except by his other allies and myself, as he has left little to render his name permanent. His pursuits were too multifarious to yield useful fruits, and their variety engendered want of concentration. His prominence in Liverpool, where he was long the only man of science, led to an absurd adulation of him, and overbalanced, I fear, his own self-judgment. Certain it is, at all events, that with numberless accomplishments and excellent points as a man and a Christian, he failed here as a physician, and was not much more successful as a professor. But I loved the doctor not the less for all that. He was a genuine, kind-hearted man, and he took to me warmly from an early period; nor did any of our little dissensions ever disturb the kindly interest he con-

stantly took in me. I do not think he ever in the course of his life could take in the complex fact as a clear idea, that the same infant whom he used to dandle on his knee in my father's house when he was a student of eighteen, was also his predecessor in his University Chair. And, indeed, I daresay such a conjunction of events is rather rare."

"To A. C. 3*d August* 1862.

"Archie Horne had been known to me by no other name since the earliest of days, when he taught me bird-nesting and angling, in which arts he discovered a most precocious adroitness. I can carry, too, my memory back to the time when your Foulden uncle and I used to call on him at his father's house in Candlemaker Row, chiefly that we might take a fearful glance through the back window into the Greyfriars' Churchyard, and recount to one another tales of the doctors who must have been recently digging up bodies from some of the out-of-the-way graves, to make Glauber-salts of the bones. You may guess how the next necessary dose of the same tasted after that. Archie, however, was never a great scholar at the High School or College; so that as we two brothers were over average in that respect, you may wonder how we were so intimate. Certain it is that no intimacy was closer, and that it was one of the very few of my boyish intimacies which outlived all changes of time and circumstance."

"To D. C. 18*th October* 1863.

"I was very glad I went to the College of Physicians' dinner, for I had two most excellent neighbours at table, Sir Henry Rawlinson and M. Desmarest: and I heard a most felicitous and beautiful speech from Mr Gladstone, who touched with extreme skill a very delicate theme — a comparison between old Brougham going out of the world and young Prince Alfred entering it. The whole meeting was admirable, and a great triumph to the College, and to Burt, the principal 'impresario.'"

"To A. C. 17*th August* 1865.

"We have sustained a great loss in the University by the death of Professor Aytoun—a loss which cannot well be supplied. He raised the class from next to nothing to one of 150 students, and was greatly liked by them. He was a most delightful and amusing friend."

"To A. C. 17*th November* 1865.

"Mr Oakeley is a very amiable, agreeable man, of good family. I have taken a good deal of trouble to obtain for him fair-play, and to aid him with all my power in rather trying circumstances. On Saturday, after his induction, I had to go into Roxburghshire, leaving to a very crowded Senatus an extremely knotty financial report on the affairs of his Chair. I anticipated some disturbance, as there was no one with knowledge enough to rule in this matter a rather difficult body to manage; but it seems that

Professor Oakeley encountered such a pandemonium as must have terrified him for his prospects. The next time I must try to lay the demons for him, of whom —— and —— are chief."

"To D. C. 15*th April* 1866.

"I saw a good deal of Thomas Carlyle here last week, and found him a simple-hearted, straightforward man, with all the ingenious felicity and humour in conversation which one would anticipate from his writings; but I was sorry to observe that his physical powers are not retained on a level with those of the mind. He evidently greatly enjoyed our Senatus symposium, at which the new-made LL.D.'s were present. Maclagan was in great force, and very lucky in his choice of themes. Blackie was just boisterous enough to carry off his peculiar species of humour. Ramsay, the geologist, sang a capital quiz of his great friend Sir Roderick, for returning to his patron the Russian Emperor, from the Ural, without finding for him any 'coal' in any 'hole.' Sir Wm. Stirling-Maxwell, as Rector of St Andrews, was also a guest, and seemed not less delighted than Carlyle. Clearly they find a congress of Edinburgh professors something very different from a conventicle; and from various quarters I hear of their surprise and pleasure."

Journal. "*Jan.* 1867.—Alas! alas! the good Goodsir, after many a hard contest with his dire enemy, is yielding at last to insidious paraplegia of

sixteen years' duration. Mind is now giving way as well as body. He has been labouring to prove that the human body is a system of triangles, and told me I should soon see an inquiry of his, which he was preparing for the Royal Society, as to the existence of an analogy in form between animals and vegetables, and that he had satisfied himself already 'that many fruits have a head and tail, of course, but also a right side and a left side, and something very analogous to an abdominal protuberance'!"

Journal. "*Aug.* 27, 1867.—Meeting to-day Adam Black hale and active still, I congratulated him on not having been mixed up with the last Parliament's 'leap in the dark,' now finally taken in quest of Reform: told him that, as he owed his escape, he owed also a debt of gratitude to M'Laren for turning him in the nick of time out of his membership; and confided to him my persuasion that, had every man of his party and of mine voted according to conscience, instead of according to party, there would neither have been such Reform nor any Reform. Adam cordially agreed that there could be no doubt about it."

Journal. "*Sept.* 23, 1867.—Dr Pagan died this day in his seventy-fifth year of slowly creeping paralysis. Sam Pagan was one of nature's gentlemen, and as such had an influence for good on Edinburgh medical society in troubled times. There are unhappily too few among us of that stamp now."

Journal. "*Oct.* 18, 1867.—At a very numerously attended meeting of the Senatus, it was carried without a dissentient voice that the degree of LL.D. should be offered to Disraeli. Political parties vied with one another in brotherly love; the resolution was moved by Sir James Simpson; the Law Faculty, now all Conservative, proposed to add Mr Lowe, who was to be here at the same time, and were, I doubt not, induced to this by the hope of removing all show of political partiality. Sir James, however, objected, in spite of Lowe being one of the greatest scholars in England, because it was wrong to dilute the honour designed for Disraeli. The Senatus leaned to the side of their Law Faculty, and in the end it was unanimously resolved to give the degree to both."

The Disraeli Banquet. "*Oct.* 22, 1867.—Sir William Stirling-Maxwell made a very fine speech an hour in length, but not a whit too long, introducing the great toast of the occasion; and Disraeli replied with an address which lasted rather over two hours and a half, but which, nevertheless, seemed to fatigue no one. It was, I must say, a rare specimen of oratory. It consisted in principle and most of its details of a historical and critical analysis of the Whig and Tory parties in relation to the question of reform of the franchise from the beginning of last century. The argument—that the Tories and not the Whigs originated it, carried through for a long time its principal steps, and have now been merely reverting to their ancient and long-cherished faith—was brought out very

ably from first to last. The speech was not entirely made up of argument; occasions occurred for interludes of pathetic declamation, and others for intense sarcasm, especially in quizzing ——; and towards the end he delivered a few grandly turned and grandly spoken sentences on the cares and responsibilities of a Prime Minister, each little clause embracing an event in recent British history. Will it be believed that these two great addresses were preceded and followed by speeches from smaller men trying to emulate their leaders! Among others, ex-Provost Lawson attempted a long harangue about the Houses of Parliament. He is a very good speaker, the good old Doge; but it was a terrible mistake to impose a long speech on 1200 people, exhausted by the excitement and length of Disraeli's eloquence. And so after a few sentences he lost all hold of his audience; and a goodly long address, recognisable only by his gesticulations, was continued pluckily to the end, amidst the most overwhelming buzz of tongues I ever heard. Twice he was interrupted by a large group of kind friends, rising with glasses in hand, draining their wine, cheering his toast, and ostentatiously sitting down; twice did the chairman's trumpeter, after this movement, proclaim the next toast; and twice it was found, on silence ensuing, that old Lawson was still speaking his speech!

"*Oct.* 25.—Yesterday evening I dined with Lord Advocate Gordon to meet Disraeli. He seemed at first a shy, rather silent man; but after the ladies left the table, and the conversation became general, he

put his horns out of his shell, and took ample share in what passed. 'Punch,' by whose caricatures he is best known, sadly misrepresents his face and figure: he is a tall and rather large man, with massive features, every component of which is on a large scale, the mouth especially, which is such as will satisfy even Syme and his dogma about greatness being measurable by the ratio of that feature. His conversation, as one may well suppose, is full of good matter, and enlivened by happy easy diction; and he is a rare anecdotist: he is extremely grave, rarely smiles, and still more rarely laughs; nevertheless, he was fairly overcome in the drawing-room by Lord Neaves's two songs, the 'Origin of Man in a Monad' and 'The Permissive Bill.'"

Journal. "*Aug.* 28, 1869.—Dr Begbie's long illness ended fatally the day before yesterday. Our intimacy and attachment were of rather recent date, and were indeed chiefly formed and confirmed when we became what the professional world of Edinburgh called 'rivals' in consulting practice. From the time when I began to know him, I learned to esteem him as a man of great probity, honour, straightforwardness, and independence of mind. For many years he and I lived in a state of uninterrupted and cordial friendship—manifested, I hope, to many in our professional dealings.

"He had serious difficulties to contend with at the outset of professional life; but he overcame them through his talent and diligence, together with the

favour of Dr Abercrombie, who discovered the merits of his apprentice, and made him his assistant. Dr Abercrombie was then engaged in those pathological investigations which he published soon afterwards, and which enabled him to pass from the sphere of general practice into that of consulting physician. Begbie was thus early imbued with the spirit of professional research, which he maintained throughout his whole life. On his master becoming physician, much of his general practice passed into the hands of Begbie, whose position was so confirmed at the age of thirty-two, that he was appointed successor to Dr Duncan as physician to the Scottish Widows' Fund Assurance Society. When Abercrombie died, Dr Begbie became a consulting physician; but he erred in not making the change thorough, for he long, if not always, continued to practise in both ways. One circumstance which greatly aided Begbie in town practice was the dissensions between the University and the Royal Colleges of Physicians and Surgeons during the tedious and fluctuating progress of the 'Medical Bill.' The object of those who at that time [from 1848 to 1858, when the Medical Act wound up the controversy] ruled the Royal Colleges was to have it declared by statute that University degrees were mere honours, conferring no right to practise any branch of the profession, and that the only portal for that purpose was the licence of one of the colleges. This very impudent proposal was maintained with pertinacity to the very last; and it was even applied, after the passing of the

Act, in an attempt before the Privy Council to prevent the University from granting the degree of 'Master in Surgery.' These schemes ultimately failed in every direction; but the University was long in danger, and the danger was frequently urgent.

"It was scarcely possible for any leading medical man in Edinburgh to keep clear of the contest. Begbie was accordingly involved in it, but he steered clear and unharmed out of it in the end. This I could not do without disgrace; there was a considerable University party in my own college, the College of Physicians, who were kept together as long as they could do any good, but they were a minority. Begbie belonged on the whole to the majority, and during a part of the contest voted with them; but when he saw the great lengths they were disposed to go, he gradually quitted them and became in the end a stanch University man. Before this issue, however, the question of succession to Abercrombie's place in the profession was settled. A great body of the younger and middle-aged general practitioners in Edinburgh—committed to the cause of the Colleges—left off consulting me and transferred themselves to Begbie. My country consultations went on steadily increasing; but in two years the diminution in my home-business amounted to £700 a-year, and there has been no rally since of material consequence. During all this time Dr Begbie and I continued in unabated and cordial friendship. The party to which he was at first attached made their cause so much a personal matter, that this result could not have been a very

easy one for him to secure ; but he was successful, and I showed him my conviction of his honourable conduct by inducing the University Court to elect him one of the extra-professorial examiners in our Medical Faculty."

Journal. "*Aug.* 28, 1869.—I find that another older, but less intimate, acquaintance is also dead, the last male, except a mere infant, of a noble race—the University Gregorys. John Gregory, the eldest son of my famous preceptor, has survived all his brothers. As a fellow-student of mine at the Arts classes of the University, he showed much of the family talent. He joined the Bar, and high hopes were entertained of his success by his companions and friends. But he took a monomania for gymnastic exercises and perfecting his bodily frame and condition. He succeeded in this respect with his upper half; but never made proportionate progress with the shambling Gregorian legs which characterised the males at least of his family. Worse than all, he succeeded in nothing else: ostensibly all his years, from adult age till his death at seventy-two, were spent in gymnastic exercises at Edinburgh, London, and on the Continent, and in nothing else so far as I have ever learned."

"To A. C. 2*d May* 1862.

"Mr Syme went up to the opening of the London Exhibition as chairman of Jurors on Surgical Instruments, in which capacity he would parade yesterday in the procession, in his professorial gown and trencher.

It is a regular farce our friend being a juror of surgical instruments,—he who boasts that a knife, an artery-forceps, a saw, a bone-nipper, and a catheter, are all the machinery of scientific surgery. Indeed he makes no secret that he will have the easiest duty of all the jurymen; for he will just 'condemn everything.'"

"*Graduation Day, August* 1, 1867.—Syme gave the address and the dinner: the address was short, and consisted only of advice. The first warning he gave was to avoid all quarrelling with professional brothers: it was very well put, but I could not help muttering to my neighbour, Professor Stevenson, the reply of Jingling Geordie to James VI.: 'I am afraid I might have thought of the old proverb of Satan reproving sin.'"

Journal. May 31, 1867.—*Meeting of the Medical Council. Syme turns the flank of Sir Dominic Corrigan.* "*Dramatis personæ.*—President (Dr Burrows), Sir Dominic Corrigan, Professor Syme, Dr Alex. Wood, Dr Christison.

"*Dr A. Wood.* . . . And I call Sir Dominic Corrigan's attention to the fact that the Queen's University, Ireland, is the only licensing body which has not conformed to the recommendation of the General Council as to preliminary education, but still allows its medical students to postpone their preliminary examination to the end of their second year of professional study.

"*Sir D. Corrigan.* The Queen's University of Ire-

land, I beg to inform Dr Wood, is no worse in that respect than the University of Edinburgh, which requires preliminary examination to be taken before professional study, only 'as far as possible.'

"*Prof. Syme.* Sir Dominic Corrigan is wrong: that qualification in the rule has been for some time struck out.

"*Sir D. Corrigan.* No, it is *not*; I find it here in 'Churchill's Medical Directory,'—'as far as possible.'

"*Prof. Syme.* Then Churchill is wrong. I can assure Sir Dominic that application was made to the due authority, and that these words no longer exist in the University regulations.

"*Sir D. Corrigan.* Mr President, I prefer to trust the document rather than any verbal statement—even by Mr Syme.

"*Dr Christison.* Document! do you call that book a document? The only printed authority Sir Dominic should refer to in such a question as this is the 'University Calendar.' If he will refer to it he will find he is altogether wrong, and will get a great deal of information besides which will do him good. Mr President, having been until lately secretary of our University Court, I have necessarily had occasion to know that the change in question was effected more than a year ago. I have formerly mentioned to the Council that we have to undergo a tedious process for altering any regulation which, like this one, is part of an ordinance by the Universities Commissioners. As secretary, I am acquainted with the whole proceedings about the phrase which has been for years the subject of Sir

Dominic's attacks, and I know that the Medical Faculty proposed to expunge the obnoxious words; that the Senatus assented; that the University Court approved; that the Chancellor concurred; that the Privy Council gave its sanction; that this sanction was published by the Senatus; and that the regulation, without the words 'as far as possible,' is now in force, and was actually applied last year.

"*The President.* After these satisfactory explanations, I hope, Sir Dominic Corrigan, that you will see it right to withdraw your statement.

"*Sir D. Corrigan.* I beg to repeat, Mr President, that to me a document is better evidence than any verbal statement by Dr Christison and Mr Syme.

"*Dr Wood.* As a member of the University Court of the University of Edinburgh, I can affirm that every word that has been spoken by Dr Christison is true. But Sir Dominic is surely aware that, in a court of law, the oral evidence of Dr Christison, the official of the University Court, would be accepted as better evidence of such a fact as this than any document.

"The dogged Hibernian, 'stiff in opinions, always in the wrong,' made no sign, and the Council went on to other business. At a later period the President said, 'I beg to name for this committee Sir Dominic Corrigan, Dr Storrer, Mr Syme——'

"*Mr Syme.* Sir, I decline to serve on a committee along with Sir Dominic Corrigan.

"After an interval of other business another committee was appointed, and again Mr Syme was named after Sir Dominic.

"*Mr Syme.* Sir, I decline to serve on any committee of which Sir Dominic Corrigan is a member.

"*Sir D. Corrigan.* Mr President, I decline to serve on a committee on which Mr Syme declines to serve on the grounds he has mentioned.

"*The President.* Does Sir Dominic Corrigan desire to withdraw his name from this committee?

"*Sir D. Corrigan.* I do.

"*Mr Syme. Then I will serve on it with much pleasure.*"

Journal. "*June* 26, 1870. *Death of Syme.*— Such is the end of the last of the companions of my boyhood. I have made, and preserved, thanks to a kind Providence, not a few dear friendships even late in life, and continue to add to them; but there is an end to the last old companion that time, distance, and incompatibility of pursuits had left me: and that is a blank which no kindness of recent friends can ever entirely fill. I was asked some days ago to prepare a biographical sketch of him for a newspaper. But I could not bear the idea of writing about a living, even though a dying man, as if he had left this world; and now that he is gone, my thoughts, when I think of his life and his work, and his very remarkable structure of mind, are too keen, too many, and too confused, to arrange themselves in a biographical form. I begin to fancy, like Dr Knox of sneering memory, that the best writer of a biography must be he who had least acquaintance with his subject. But Knox's sneer was much more

general in its bearing, as it included all 'articles' for reviews and encyclopædias."

Journal. "*May* 12, 1870.—This evening died at the age of seventy-nine a very old and good friend of my own, and my family before me, Mr Nasmyth. He was the first dentist of any note in Edinburgh, who was not only a regularly bred, but likewise a carefully educated surgeon. This circumstance, with his affable manners, extreme kindliness, and a skilful hand, brought him such success as no dentist in Scotland had previously attained. His example has been the means of raising dentistry from the back-slums of surgery, where it dwelt before his time. His professional ardour clung to him to the last. It was not above a week before his death that he extracted a tooth with his usual deftness and success, and instantly fell back into a chair in a fainting state. I never knew a truer, kinder, more honourable gentleman."

Journal. "*June* 1, 1870.—I had the honour of being at the dinner of the Moderator of the General Assembly yesterday. The speaking was very superior to such after-dinner oratory as I have generally had the luck to listen to. I was greatly struck with the high ability shown by the clerical speakers, proving that the Church of Scotland abounds in men of talent, unknown because they have few public opportunities for manifesting their powers, but whom any emergency would develop into powerful advocates and pillars of the Church. No

man prepossessed me more in his favour than the Moderator, Dr Ritchie. He spoke with great ease, brevity, and felicity. It is not easy to say in what respect he most excelled—invention, style, modesty, unaffected earnest delivery, sincerity, or pathos. He is a gem which has been hitherto shining in the obscure shades of Jedburgh, but well known to his friends as an elegant and accomplished scholar, and a thorough gentleman. My surprise was great to learn that he is younger brother of my old College chums William and David Ritchie, who long lived as College students next door to my father's house in Argyle Square, with their uncle Dr William Ritchie, then Professor of Divinity."

Journal. "*August* 2, 1870.—Yesterday we had two remarkable men up for the honorary degree of LL.D., both from Oxford—Dr Acland, and Max Müller, the philologist. In the evening we had a University dinner of thirty-eight in the Douglas Hotel. The speeches were as far above those of an ordinary Slaney dinner as the 'proviant' was beneath one. What else, indeed, could be expected, when the only speakers were Inglis Justice-General, Lord Neaves, Sir Alexander Grant, Playfair and Gordon, Acland and Max Müller? The finest of all was the speech of the Oxford philologist. It was indeed the finest specimen of after-dinner eloquence I ever heard. Whether for novelty and brilliancy of thought, elegance of diction, chasteness of ornament, or vigour and ease of delivery, I have heard nothing to surpass, perhaps to equal it."

"To Mrs A. C. *26th December* 1872.

"In the train I encountered Sir W. Gibson-Craig, who told me a strange anecdote of his early life. He landed from Corfu at Corinth in 1821, at the very outbreak of the Greek revolution. He therefore thought it well to get out of mischief at once by crossing the classic isthmus to Megara, and there taking his passage to Constantinople. But he and his Greek servant were arrested near Megara by twenty most blackguard-looking armed Greeks, who marched them off to the municipality of the town. The revolution had broken out there too, and the town was full of wild men in frantic excitement, firing off muskets in the air *more orientale*. There was a great crowd, of which the upper sort catechised Sir William through his Greek servant as interpreter. Sir William had Greek enough to see that his man was floundering, and about to get them both into danger; so in a moment of inspiration, he mounted a chair, waived his arm for silence, and began to spout from a copy the famous Romaic song which Byron has faithfully translated into his well-known Ode. If the Megareans were frantic before, they were neither 'to haud nor to bind' now; the crowd vociferously applauded every line. Fresh crowds pressed in on hearing the din, and Sir William had to read the whole ode eight times. He was patted and petted and feasted, escorted to the vessel, loaded with provisions for his voyage, and thus found that a little knowledge of Greek enabled him to carry off safely his skin and his chattels from no little peril."

"To Mrs A. C. 16*th August* 1876.

"The newspapers of this morning will inform you who were the guests of the Lord Provost. There were, you will observe, besides Prince Arthur, Dukes, Lords, Right Honourables, C.B.'s, Bailies, Town-Clerks, Knights, and plain Messrs. An official in the drawing-room read aloud the order of proceeding to the dining-room. I thought it odd that I should be put at the very point of the tail of the procession; but I was still more surprised when I found my place at table was beside the Prince, who had at his other hand the Provost's wife, the only lady in the company.

"At table, as we sat down, the Provost from the opposite side introduced me—upon which I thought it well to say that I had the honour of shaking hands on a prior occasion with H.R.H. when he was a little boy at Balmoral. We had a great deal of conversation about everything, great things and small things, serious and funny, and what not. It is perhaps enough to say that I felt I was beside a well-informed conversable officer of Hussars, with no airs whatever. The Duke has the profile of the Queen when she was young, is about 5 feet 9 inches, handsome in figure, evidently active and agile, and seems to be thoroughly devoted to a military life."

Journal. "*July* 27, 1881. *Opening of Leith Dock.*—I went by invitation of the Lord Provost and Council to join in receiving H.R.H. the Duke of Edinburgh, as he had requested to see some of his old professors. He at once came up to me,

shook me cordially by the hand, referred to our former frequent intercourse when he was an Edinburgh student, inquired especially for Dr Balfour, and was altogether so affable and easy in his manner, that it was difficult to observe in conversation the full respect due to his rank. He has a manly, resolute countenance, and a fine figure. I observed his countenance narrowly as the steamship in which he was conveyed entered the dock between amazing masses of people; and I am much mistaken if, should his fleet encounter a hostile one, his ship were not to be in the hottest of the fight."

"To Prof. TURNER, Edinburgh University. 20*th Sept.* 1881.

"I got a roundabout and indistinct account of Stirling's[1] lamentable illness a week before receiving your authentic account of it. I was much afflicted on his account, upon yours, and upon my own. For I had seen enough to be aware how much you depended on his services, and how amiable and well-informed a man he was—worthy of the esteem of all, and of the friendship of those who, like myself, had the opportunity of becoming intimately acquainted with him.

"It has often been a source of pleasure to me, and still is in the retrospect, that this born genius was rescued by Edinburgh men—by Goodsir and yourself—from obscurity and the burden of a menial occupation, and encouraged and rewarded by his scientific friends, instead of being left to the struggle be-

[1] Professor Turner's museum assistant.

tween his innate bias and the incompatible life of a workman, as was the case with Edward at Aberdeen and Banff, and the other native genius at Thurso. It has always been to me a mystery that nothing whatever was done to relieve and encourage these two men by the numerous lovers of natural, botanical, and geological science who came in contact with them, several of whom, persons with high scientific name and influence, seem to have plundered them of their information and treasures—without any more substantial acknowledgment than thanks, so far as we know."

CHAPTER XIII.

PERSONAL ANECDOTES, DESCRIPTIONS, ETC.

BOTANY *VERSUS* PHILOSOPHY — MESMERISING LORD LAUDERDALE — SWEDISH TÆNIA—LORD COCKBURN'S HUMOUR—PRIVATE FRIENDSHIP AND PUBLIC HOSTILITY—VISIT TO BALMORAL—SIR COLIN CAMPBELL—SCOTT RUSSELL—A SCOTTISH CHARACTER—A NITHSDALE GAMEKEEPER—ANÆSTHESIA AND CHLOROFORM—BIGGAR CHURCH—DINNER AT SIR WILLIAM GULL'S—STATUE OF PRINCE ALBERT.

In this chapter we have collected some of Sir Robert's opinions on various subjects, which could not well be placed elsewhere. To these are added a number of anecdotes or accounts of trifling adventures and occurrences in his life which he thought of sufficient interest to deserve a place in his letters or journals. In some of these the dialogue is in the Scottish tongue, with which he was quite familiar, understanding well how to imitate it conversationally in several of its dialects. His excellent memory enabled him to store up with great accuracy anecdotes which he heard in general society; and some of those which particularly struck his fancy he committed to paper. At the end

of the chapter we give some examples which we believe have not hitherto been published.

BOTANY *VERSUS* PHILOSOPHY.

Not dated.—"Among the occasional associates of the philosophers of Edinburgh towards the close of last century was Arthur Bruce, originally a gardener, afterwards a scientific botanist, who had risen in society by success in life and self-education. One of his occupations, in his later years, was to transplant to Arthur's Seat and its environs various British plants not native in the locality, such as *Butomus umbellatus*, *Stratiotes aloides*, *Hyoscyamus niger*, *Dianthus deltoides*, *Viola lutea*, *Ranunculus lingua*, *Euonymus europæus*, *Geranium sanguineum*, &c., which used still to be found there in my young botanical days, but most of which have been extirpated by the ardour in field-work and rapacity of the pupils of Graham and Balfour.

"Dugald Stewart was one of Bruce's familiar friends. On one occasion Stewart, Bruce, and my father were walking together on Arthur's Seat, when Bruce for a long time took no part in the conversation—which was carried on betwixt his two companions on some abstruse philosophical question regarding the syllogism. At last Stewart, noticing Bruce's continued silence, observed to my father, 'Is it not an extraordinary thing, Mr Christison, that I never have been able to make our acute friend, Arthur Bruce, understand the nature of a syllogism?' Whereupon Bruce retorted, 'But is it not much more extraordinary,

Mr Christison, that, in spite of all his profundity of thought, I have never been able to make Professor Stewart comprehend the Linnæan classification?'"

THE MESMERISING OF LORD LAUDERDALE.

Not dated. The account must have been given before 1850.—"Some years after the great outburst of mesmerism in this country—about the time when my former colleague, Dr Gregory, allowed himself to be carried away by it—Lord Lauderdale, then a very aged but still lively man, expressed to the late Dr Davidson his surprise at people being apparently unaware that mesmerism had been imported into Britain and set aside as folly more than fifty years before. He then described, in the following terms, his own acquaintance with it at that period:—

"When he first went to London to take his seat in the House of Lords, he found mesmerism the subject of conversation in every drawing-room. Resolving to witness it, he went one evening into the city, where a Frenchman daily performed wonders on the credulous. Lord Lauderdale was ushered into a large amphitheatrical room, with a platform on which there was no article of furniture except a very comfortable-looking arm-chair. 'Presently,' said his lordship, 'the mesmerist appeared, accompanied by a number of young women; and I witnessed, in the persons of these girls, a number of very remarkable phenomena produced, which were intelligible to me upon no known principle, and which M. Potier claimed to be the result of his mesmeric passes.

"'Having finished his exhibition, the mesmerist begged his audience not to imagine for one moment that what they had seen was accomplished by any collusion betwixt him and these "young ladies"; and he added, that he was ready to exhibit the same phenomena by mesmerising any lady or gentleman who would favour him by becoming the subject of experiment.

"'Thereupon everybody began to look in all directions for some one willing to accept the challenge. But no one seemed to think of accepting it himself. At last, trusting to my being quite unknown in that part of London, I rose and intimated that I was ready to submit myself to experiment for the satisfaction of the company. "Vare well, sir," answered M. Potier, "be so good as descend into this chair"—which I did. The mesmerist then proceeded to execute passes for some time over my face, and asked me if I felt anything. I deliberately, with a reflective air, turned my head to one side and then to the other, endeavouring to find out whether I did feel anything, and I answered, "No!" The passes were repeated, and again the same question, after which there followed the same consideration and the same answer. A third series of vehement passes succeeded, and after an unusually long continuance of them I was asked a third time whether I felt anything. The answer, after much apparent searching on my part for a sensation, was this time "Yes!" A buzzing instantly arose among the spectators—"Ah! he feels it! at last he feels it;" upon which M. Potier said sharply, "Vat you

feel, sare?" On my replying, "Very tired with all this confounded nonsense," the buzz was converted into a titter. Then ensued most powerful, almost ferocious passes, which suddenly ceased, and the mesmerist observed, "Ah, sare, you are too strong for me. You are to-day in vare strong health." "I beg your pardon—you never were more mistaken in your life—I had to take physic this morning."' (There were few mornings of which his lordship might not have made the same remark, for he was all his life probably the most inveterate swallower of physic in Great Britain.)

"'M. Potier was still not discouraged, but resumed his passes and persevered long without visible effect. At last one of the young ladies—I suppose I must call them so—who had been leaning all the while on the left arm of my chair, watching intently the progress of matters, suddenly looked up to M. Potier and exclaimed, "Oh, sir, I see how it is! It has all gone into his belly!" Upon which I bowed to her and said, "Madam, I do not know what may be in your belly, but I assure you there is none of it in mine!"

"'A universal roar of laughter followed this sally: the audience rose to their feet and rushed with one accord to the door. On the way out I was thus accosted by a gentleman, obviously in a great state of excitement. "Oh, sir, how infinitely I am obliged to you! I am a medical man, sir. My name is Pettigrew. My friends here beside me are all medical men. I cannot tell you how grateful we all feel towards you for exposing that scamp. *We* could

not venture, sir, you very well know. Our interference would have been put down to prejudice. We should have been mobbed, sir, and hustled out. Oh, sir, we cannot sufficiently thank you. Excuse me, sir, for the freedom — will you breakfast with me and some of my friends to-morrow morning, and talk over this strange matter?" I contrived, however, to evade this warm invitation, and reached home preserving my *incognito*.'

"This anecdote I heard from the late Dr Joshua H. Davidson, soon after he had it from the lips of old Lord Lauderdale himself."

ULBSTER HALL.

"To D. C. *7th April* 1856.

"Ulbster Hall is the offspring of the conversion into shops of No. 132 George Street, and occupies the entire drawing-room front of that house. Miss Catherine Sinclair has long looked daily from her house at the unoccupied room on the opposite side of the street, with a painful sense that so good a room must positively be turned to some good account; and so she determined to improve the manners and customs of Edinburgh Society by substituting evening lectures for balls; and having rented the room, and christened it Ulbster Hall, she has already entertained no less than 150 fashionables, on each of twelve occasions, with music, tea, and coffee, and a lecture or reading of a play. Professor Aytoun led off with 'Macbeth,' which was eminently successful, being very well read, and brilliantly relieved by the whole of

Locke's music, in which I performed the prominent but *base* part of Hecate. Lord Neaves followed on some literary theme; very successfully, I was told—which I can easily believe, for he has a rare talent for making knowledge both plain and attractive. Mr Moir (lately Professor of Rhetoric) gave a description and exhibition of photography—also extremely clever. Lord Advocate Moncreiff delivered a quaint dialogue between the wits and poets of Queen Elizabeth's time on the lyrical poetry of the period. Dr Bennett gave an admirable lecture, under the odd title of the 'Physiology of Macbeth,' upon the rational view to be taken of such of the mental phenomena of mesmerism as are true; and in the course of it he pounded satisfactorily Dr Gregory, who always sits in the front seat of every concert, opera, lecture, or public spectacle, but found his favourite position a very hot and uneasy one for once in his life. This led to a sort of reply, in which he dosed his audience with all the common trash of mesmerism, clairvoyance, table-turning, and spirit-rapping, and declared his belief in all of them and in every alleged fact connected with them. He had the egregious simplicity to declare that he had seen a table, of its own accord, making 'graceful movements,' and walking from one part of the room to another; and that he believed, on the authority of a witness whose testimony was indisputable, that a pet table had in similar fashion followed its mistress up-stairs like a dog. I was not present, thinking it a shame to encourage in any shape the Professor of Chemistry in making a donkey of him-

self and a laughing-stock of the University. Nothing less would content our Professor of Music, Donaldson, than to show what he could do; and he was particularly successful in producing some very odd noises from some fantastic apparatus, and in tiring out the patience of all with a tedious and earnest demonstration of extremely dry musical principles. Mr ——, too, must needs try his hand upon the 'Most Remarkable Discoveries of Modern Times'—a comprehensive subject; but I understand he never got beyond lucifer-matches, and failed in all his jokes—above all, in an attempt to connect love-matches with the lucifer sort.

"You will wonder that I have escaped a similar exhibition; but I escaped only by a hair's-breadth. Meeting Miss Catherine Sinclair at dinner, she said, 'You surely will contribute something;' to which I replied, 'Certainly. I could give the ladies valuable information "On the Art of Secret Poisoning."' To my consternation the offer was accepted seriously, with thanks and high commendation of the subject; and I escaped only by a half-promise of something allied, and by becoming overwhelmed with my duties as the season went on.

"Miss Sinclair really deserves much praise for the conception of this novelty, as well as for the success with which it was carried out. The lectures were relieved by good amateur music. The whole is at the charge of herself alone; and so, take it all in all, she has deservedly increased her popularity in Edinburgh."

A SWEDISH TÆNIA.

Not dated. Probably written about 1857.—"About this time two years ago I became intimately acquainted, by a week of constant intercourse here and at Arddarroch, with one of the best of men and pleasantest of companions, Professor Andreas Retzius, the Stockholm anatomist. Our acquaintance commenced across Dr Bennett's table after dinner, in the following dialogue:—

"*Retzius.* Maister Chris-ti-son, did you know Monsieur Mérat when you were in Pāris?

"*I. Dictionnaire Matière Médicale* Mérat? No; when I was in France, I was a very young doctor, and he too much my senior.

"*Retz.* Ah! he was a very nice man. The old man Mérat was very kind to me when I was in Pāris. He was then full of bandwurm—what you call him?

"*I.* Tapeworm.

"*Retz.* So! He was writing his big book about it; and he was very full of tapeworm. Tapeworm to-day; tapeworm to-morrow; toujours tapeworm! He cure him always with the root of—*grenadier*—what you call him?

"*I.* Pomegranate.

"*Retz.* Ah! so! Pomum granatum! Pom-gran-at. Very good! very well! with the pomgranat he cure the bandwurm always by the watch.

"*I.* What? How is that?

"*Retz.* By the watch. He give the *grenadier* at an hour. At another hour—by the watch—you see

your bandwurm sure enoff. Tenez! I will tell you something: A countryman of mine, a courtier, could not be cured for twenty years of his bandwurm. I write him to come to Monsieur Mérat at Pāris. Affairs took him to London first. In London Sir Astley Cooper was the great man—you know that. My friend consult Sir Cooper. Sir Cooper did no good—of course,—he was no more than a sorgeon,—it must be so. Then my friend come to me in Pāris, and I take him to the nice man, Mérat. 'Ah, bien! tenez monsieur,' dit-il, 'vous irez chez Monsieur l'Heritier, jardinier, Rue de'—I am forgotten the Rue,—'tis no matter,—'you buy from him a *grenadier*, all alive and in a pot, not in the ground: Monsieur Retzius will cook him for you. And when you take him, you shall be done with your bandwurm.' My friend say to Mérat, 'That is very leetle cure for my twenty-year bandwurm.' 'Ah! ah! tenez donc, monsieur,' repliqua-t'il, 'vous allez prendre,—you will take one leetle po-ti-on to-morrow at six hours; another po-ti-on at seven: if you take a third potion at eight, that is all ver' well,—it is not nécessaire. At ten, by the watch, I you visit at your hotel. If you present me your band, you will pay me five Na-po-lé-ons; if you do not present me your band, I will pay you *feef-ty*.' Same day, my friend and I, we go to the gardener and buy a pomgranat, a big tree—big as all that [embracing a large space with his arms]—and in a pot, and the earth, all together. We dig him up, and I take him down-stairs to the kitchen to cook him. Next morning at six, one po-ti-on; at seven, two po-ti-on; at eight,

three po-ti-on. At nine, by the watch, my friend begin to feel [placing his hands over his stomach, and making a rueful grimace] malaise in his belly. He go to the pan, and, ah! what do you think?—[rising up and crushing a table-napkin into a ball betwixt his hands]. Bah! not near big enoff! [Adds another napkin, and plumps the ball at his feet]—Plonk!—in the pan you may see the most grand bandwurm ever had been! I wash the band and clean him, and spread him on the table so [showing how to spread it zigzag]. The table not grand enoff! And then I take the band to the window, au troisième, and I put him over [imitating the paying out of a rope overhand] till he near touches the ground, and all people see him, and him all alive! Soon—at ten—come the nice old man, Mérat. And he sees—ah! what do he see? He do see his five Na-po-lé-on all safe enoff!'"

LORD COCKBURN'S PECULIAR HUMOUR.

"31*st Aug.* 1857.—This morning I saw the last of an old Edinburgh notable, A—— M——. I never met before with such a case of complete absence of physical suffering from illness. During his final bronchitis, and the long stage of debility that followed it, and equally during a protracted attack of paralysis in 1847, when I also attended him, he constantly denied that he had any pain or uneasiness whatever. His expression did not contradict him. He was indeed at all times like a man of sound health in point of cheerfulness. He recovered entirely from the par-

alysis, and continued to take great pleasure, as of old, in society and in travelling in England, and even on the Continent.

"In the society of the Whig law clique, of which Lords Jeffrey, Cockburn, Murray, Rutherfurd, &c., were the bright ornaments, A—— M—— was very popular; and Lord Cockburn sometimes made him the butt of his jokes, particularly on one point—a jealousy about his age being told—which, in fact, was such as to lead to his age being thought much greater than it really was. Lord Cockburn's jokes on this subject consisted of grotesque exaggerations, whose effect depended on the suddenness and promptitude with which they were brought forth. When some one asked him, A—— M—— being present, what really was the object of the approaching Parliamentary census, he instantly replied that he had the best private authority for the fact that the principal object was to ascertain A—— M——'s age. Once at dinner, when a French stranger was much struck with the appearance and manner of the old gentleman, he inquired of Lord Cockburn who that gentleman in the brown wig opposite was. 'Oh, that is a remarkable character: he does not wish it to be known; but, betwixt you and me, *he was out in the forty-five!*'[1] 'Impossible!' replied the Frenchman; 'the leetle gentleman cannot be so old as that.' 'He *was* out, however,' repeated Lord Cockburn; 'he was a drum-

[1] Lord Cockburn varied this joke on one occasion thus: "It is well known that he was out in one of the Rebellions. He says it was the '45,' but I believe it was the '15.'"

mer in the Pretender's forces!' When he was just beginning to recover from his paralysis, I one morning encountered Lords Cockburn and Rutherfurd as I was leaving my patient's door. 'How is he?' said Lord Cockburn. 'Wonderfully,' I replied; 'he is to recover! It would be a great thing for a much younger man to get over such an illness; but for one of his age——' 'Eh! what! What then is his age?' 'I believe your lordship is the best authority on that point. I don't know, but he must be an aged man.' 'Well,' said Lord Cockburn, without a moment's hesitation, 'I can't tell what is his exact age. All I can say about it is that I have seen his signature, "A—— M——," exactly as he still writes it, appended as notary public to an Act of the Privy Council of Scotland in the year 1681; and as a notary, you know, he must have been at least twenty-one in that year!'"

PRIVATE FRIENDSHIP AND PUBLIC HOSTILITY.

"There are few discoveries in our relationship to our fellow-men which we usually make so late in life, but which it would be more for our comfort in ordinary social intercourse to make in early years, as this—that our rivals in public affairs are not to be judged or treated in matters of private fellowship by their principles or conduct in public transactions. It may appear hard to understand how your public adversary may nevertheless be your private friend. It is still harder to be convinced of this, if he allow himself to be betrayed by keenness in public controversy into personalities and invective, and, worse of all, if you

fall into that error yourself. Yet it is far from impossible to reconcile public hostility with friendly private intercourse; and through ignorance of this fact, warm friendships, based on mutual respect and reciprocal kindnesses, have been lost and never recovered. It is the doom of every public body to contain at least one member who is intolerant and intolerable in discussion. But according to my observation, such a man, provided he be neither selfish, designing, faithless, nor untruthful, may in private life be courteous, agreeable, and friendly."

LIVERPOOL SAILORS.

"To A. C. *February* 2, 1862.

"Nothing struck me more in Liverpool than the sight I witnessed between the north face of the Custom-house and the Sailors' Home. There were about 500 seamen, magnificent specimens of men, and all nicely dressed, grouped in little crowds, through which we drove quietly. I don't think I ever saw such a glorious body of men accidentally brought together before. I could easily see how it is that Britannia rules the waves."

VITALITY OF RED-DEER.

"*Glenfeshie Forest, Oct.* 23, 1862.—A deer will run away when badly shot, even when rendered for a time helpless and prostrate. Mr Micklethwaite once at 150 yards shot a fine stag, and it appeared to be dead. He went up to it, took hold of the antlers, and observed to the keeper, 'A fine head, ain't it?'

The keeper stabbed the animal, aiming at the heart, but missed it; the stag suddenly wriggled out of their hands, and rolled over and over 200 yards down a slope so steep that the sportsmen could not follow it. On going round about to the spot, they found him gone; but he had been seen to enter a pine-wood on the opposite side of the glen. The search was given up, as nightfall was at hand; but next morning the keeper started him in the same wood, and Mr Micklethwaite from the opposite face of the glen saw him spring out of the verge of the wood, and bound over the hill at such a pace that the dogs had no chance with him.

"While I was contemplating the 72 horns adorning the roof of the dining-hall, and especially a fine and perfect head of twelve tines, the most advanced in age that Mr Micklethwaite had ever seen, I asked him if he had ever felt any remorse when gazing at his handiwork: he replied, 'Yes, once.' He had shot a beautiful 'stag royal' through the spine, so that he came down with his hind-legs paralysed. On going up to despatch the animal, it gave him a reproachful look which he has never forgotten, and which certainly caused him a pang of regret that he had done to death so noble a creature."

SABBATARIANISM.

"To A. C. 17*th May* 1864.

"The Presbytery made me a member of Assembly last year without my consent, but I was drawn away to the Medical Council immediately after the Assembly

met. This year they have re-elected me, also without any intimation of their wishes. I must try to do my duty, but they know that my other occupations will prevent me from being that example to others which I endeavour to show in other capacities. I fervently trust that during my presence there will be no nonsense talked about Sunday trains, or Sunday promenades, or opening Botanic Gardens on Sunday, or any other *ultra*-Sabbatarianism ; for, as an honest man, having decided opinions on these matters, I do not think I can sit still, and let it be inferred that I am in favour of shutting up the whole world all Sunday within four walls."

VISITS TO BALMORAL.

"To A. C. 17*th November* 1864.

"In the end of October I was twice at Balmoral, having been sent for by Dr Jenner to consult with him about the Princess Louise. The Princess is an extremely pretty girl of 16½, with a most engaging expression, both in repose and in conversation. While at Balmoral I lived with ministers of state and maids of honour, and conversed with princes, princesses, and queens. All were very affable and kind, —none more so than the Queen, with whom I have had several interviews about the Princess. She gave express instructions to have all due comforts provided for my arrival after a somewhat venturesome journey; and on my return home sent me capital lithographic portraits of herself, Prince Albert, and my patient, Princess Louise.

"I had, in fact, two adventures in my Balmoral journeys. On both occasions I went and returned by Glenshee, the Cairnwell Pass, and Braemar. Returning on the first occasion with the Queen's messenger, we had a runaway going up Glen Cluny. A bad buckle allowed the reins to slip through the driver's hands. Trying to get on the pole to pick them up, he slipped and fell on the road, when both wheels passed over his ankles, and off galloped the beasts. My companion readily took in my opinion that the best plan was to stick to his seat, which he did, calling out, 'Wo, wo!' to the horses, who enjoyed their gallop none the less. As I was on the hill side, not the bank side of the road, I had an opportunity of leaping out in the nick of time in case of a 'coup.'[1] This comfort enabled me to watch matters coolly. Accordingly, I got out on the step and studied the ground. Behind, a great way off, I saw the driver limping after us. In front there was a long line of beautiful smooth road. Under my feet was the macadam, spinning past at a rate which made springing out evidently madness. At last, after more than a mile's run, a short rise suddenly brought the steeds to a trot, when I sprang forward, rushed to their heads, and stopped them before they got to the top of the rise. The driver was able—courageous fellow—to drive on to the Spittal, nine miles farther.

"The next adventure was when, on my second journey, I had to go over the Cairnwell from this side at midnight, in the frantic storm of Saturday, 22d

[1] Upset.

October. The steep ascent of two miles in the upper part of Glen Beg took an hour, in face of the most furious horizontal snowdrift I was ever in. At last I began to fear that the driver would get benumbed, or that, blinded by the drift, he might let the horses swerve over the unprotected edge down several hundred feet below; and I was on the point of giving him his choice of returning, when he wisely got down and walked beside his horses. Thus we got in safety to the top, and the rapid descent down Glen Cluny soon made him comparatively comfortable and put me at ease. I got to Balmoral at 2 A.M., and found the hall porter ready to welcome me with splendid chicken and ham, and first-rate tea, which soon set me up."

SIR COLIN CAMPBELL.

"To D. C. 22*d March* 1863.

"I heard a good anecdote of Dr Archibald Gordon, whom you may remember. Before the battle of Chillianwallah the regiments lost one another in going through a jungly country. Gordon's regiment, the 29th, had no idea where they were, where their fellow-regiments were, or where the enemy were. So, after a brief consultation, Archie undertook to scuttle up a tall tree, from which it was evident a good prospect would be got. Up he went, and saw everything that was wanted; but he found the top of the tree already occupied by—Sir Colin Campbell, who merely said, 'What the devil brought *you* here, Archie?'"

SCOTT RUSSELL.

Journal. "*Jan.* 29, 1867.—I joined a scratch dinner at Mr Thomson's, civil engineer, to meet Scott Russell, the builder of the big ship. Russell is the same dandy he was thirty years ago when an Edinburgh citizen: his peremptory loud voice better befits his present position than his former one; his conversation is most agreeable and instructive, and we had much pleasant talk about old folks and old ways. He has begun a crusade for the establishment by Government of schools or professorships of technical education in all its branches. In a promiscuous conversation, all agreed with him except the President of the Scottish Academy, Harvey, who held that in art, engineering, architecture, manufactures, an express education was not wanted, because natural talent always makes its own way without the aid of education. He was at a loss, however, to answer my question,—What, then, was the use of the Edinburgh School of Design, which, the Academy tells us, has made many able artists? Russell urged that a scientific education would be of precious service, even to the genius in art, &c., by teaching him short ways to his object, and, above all, what *not* to do. Thomson illustrated this argument by an incident in his youth, when the Dean Bridge was a-building. A genius of a contractor saw that his ordinary cranes were insufficient to raise the unusually large stones of which the bridge was to be partly built, and that either a weight or counter-force was necessary. He accordingly con-

structed his crane with a second arm opposite the original one, carried his chain across the central pole to the supplementary arm, and then down to the winding axle, and was much surprised to find, as the youthful Thomson warned him would happen, that his invention was pulled over by the stone exactly as he himself knew would happen to the common crane. I told Russell, to his great delight, a no less graphic anecdote of the want of scientific knowledge of the most elementary kind in the case of a practical man of great ingenuity. The manager of our gas-works had most creditably discovered, in the course of many trials of cannel-coal, that its value for gas-making was inversely as its density, the lightest being the best. He therefore substituted the test of density for his previous unmanageable method of actual experiment with eighty tons of the coal. But he took the density by constructing, with great skill and nicety indeed, a parallelopiped of the new coal, so many inches long, wide, and thick, and weighing this against a standard parallelopiped of exactly the same dimensions of his finest Lothian cannel-coal. He perfectly understood the scientific method, however, when I made him acquainted with it for the first time in his life.

"Thomson, whom you may remember—a tall man of strong frame, and with a fine reflective head—is not so much known as he should be in Edinburgh. He is the inventor of the floating dock and of the road traction-engine with caoutchouc tires, and he has recently patented a material change in the steam-

engine, from which the professionals here expect great things. His wife, a capital improvisatrice, after the fashion of Dr Maclagan, gave us after dinner a clever ditty about 'The Big Ship and its Builder.' There were three Fyttes,—1, Noah and his Ark; 2, Columbus and his Caraval (very affectingly told); and 3, Scott Russell and the Big Ship. I picked up the last pretty nearly as follows:—

"'On a fine summer day, as the morning broke,
In his bed of tangles old Neptune awoke;
When he suddenly called to his wife, "Good lack!
In the name of wonder what's wrong with my back?
On my face I am lying, so stiff, I declare
I can neither turn nor stir anywhere.
Have I got the lumbago? or bruised my bones
When I slipped last night on the sea-weedy stones?
Ah! now I remember, when yesterday chasing
A whale for dinner, that, as I was passing
The mouth of the Thames, I heard a great bustle
In the building-yard of Mr Scott Russell;
And something came rushing out on my track—
Perhaps *that* has settled down on my back.
Be so kind, dear wife, as look up through the water,
And find out if you can what can be the matter."
"'She straightway looked, and cried out with surprise,
"Dear me! 'tis a ship of prodigious size,—
A beautiful ship, such as never was seen
In this world before,—beating Noah's, I ween.
Just wriggle round, and you'll see on the stern,
In golden letters, her name, GREAT EASTERN."
"My eye!" quoth Neptune, "what an impudent notion
To launch without leave that craft on my ocean!
But she's such a beauty, my anger I'll check.
Just look at her bows!—what an acre of deck!
A mountain for hull! and a nation for cargo!
I can't think of laying on her an embargo.
Besides, I should like to see how she behaves
When she meets in a storm the Atlantic waves.
So success to her flag, and may Jupiter shield her!
Hurrah for the Big Ship! Hurrah for her Builder!"'

"Feebly imitated, I fear, rather than faithfully reported."

A VETERAN OTTER-HUNTER.

Journal. "*Feb.* 17, 1867.—An Englishman, 6 feet 2, only 11 stone, and who has attained his fifty-seventh year, continues, in spite of bronchitis and asthma, passionately addicted to otter-hunting and fox-hunting. In both sports he follows the hunt on foot, and his very long thin shanks enable him to rival a horseman in clearing either fence or field, so that he is seldom absent from the finish. Mr Hill's only wish in life is to get rid of his cough and get back his wind, so as to resume hunting; and he will not understand that a man of fifty-six, who has once caught a bronchitis, is no longer so fit to catch a fox or an otter."

Nevertheless, Mr Hill kept otter-hounds, and continued to hunt with ardour till 1881. We have been repeatedly out with him, in very cold weather, on the Almond, when he was about seventy years of age, and even then he was in the habit, after getting wet half-way up his thighs from wading in the water, of sitting in his wet clothes at lunch, and not changing them till he got home several hours afterwards,—an example more worthy of admiration than imitation.

SCENE OF A DUEL.

Journal. "*8th Oct.* 1867.—On a visit to Fife, I passed in my gig the scene of the duel between James Stewart of Dunearn and Sir Alexander Boswell,—a

beautiful and most suitable hollow in a field hard by the road. My Kirkcaldy uncle, Dr Johnston, was hidden by Lord Rosslyn in the corner of a wood, so that he might appear at once on being called, but see nothing, and consequently should escape being compromised as a witness. He had not long to wait, for at the first shot Sir Alexander was hit in the cervical spine, and by a man who was said not to have fired a pistol-shot before." [1]

A SCOTTISH CHARACTER.

Journal. "*Dec.* 7, 1867.—On my way home from inspecting Perth General Prison I encountered a Scottish character, name unknown. At Stirling there entered my carriage a burly, bluff, builder-architect, fat, big-chested and high-shouldered, a man of much talk, brief, decisive, loud, but greatly broken by an asthmatic cough. A small friend with him maintained the conversation, in which his own remarks were quite inaudible, but their purport might be inferred from the interjectional replies of the builder. Thus all the company came at once to know that he was a building-architect, engaged on Polmaise House, and also in raising, with stone from Alloa, a front to a building in Paternoster Row, London, at the contract cost of £8000, on a site for which the owners are to pay £1600 a-year. Presently he ejaculated—'Going to Edinburgh for?—Huch! huch! huch! 'To pit my drawings before that chap Bryce.' Huch! &c. 'A rum fellow

[1] Dr Johnston was called as a witness, but he was not examined.

that!' Huch! &c. 'Awthing maun gang through his hands, to be sure.' Huch! huch! huch! huch! 'An' he keeps fast grip o't too.' Huch! huch! 'He's a' for creticeezin'.' Huch! huch! 'An' mendin'.' Huch! huch! huch! 'A clever man? *That* he is.' Huch! huch! 'But he canna' haud the can'le to his auld freen' Burn.' Huch! huch! 'I've ha'en my drawings afore him too.' Huch! huch! 'That *is* a man!' Huch! huch! huch! 'An astōnishin' man'—huch! huch!—'for his age.' Huch! huch! 'He aye wears yet a chacket naip-kyen'—huch! huch!—'an' a blue coat'—huch! huch!—'wi' metal buttons'—huch! huch!—'an' side pōckets in the tails'—huch! huch!—'an' pōcket-lids to them!' Huch! huch! huch! huch! huch! 'He finishes ye aff in nae time.' Huch! huch! '*No alterations!* says Burn.' Huch! huch! 'Ou aye, he's just a gran' man that.' Huch! huch! huch! 'If a' were like him, but!' Huch! huch! &c."

FIFE DORIC.

Journal. "*Oct.* 8, 1868.—After a professional visit to Auchterderran House, in Fife, having some time to spare, the Fife doctor and myself resolved to walk to Lochgelly station, a distance of 3½ miles, instead of returning to the nearer station, Cardenden. On leaving the mansion-grounds gate, my organ of locality rebelled against the doctor turning to the left, straight away from the railway; but I did not question the guidance of a Fife doctor on Fife roads. Presently, however, when we had gone a full mile

north, he asked a sharp-looking wifey whether we were on the way to Lochgelly, whereupon there arose a dialogue in which she used the purest Doric I have heard for a long time. 'Eh, na, sir! ye're ga'in jist richt awa' frae't.' 'But we can get to Lochgelly this way?' 'Oo aye, nae doot; but it's an unco roond aboot.' 'What is our best road, then?' 'Div ye ken Auchterderran Hoose?' 'Yes, indeed. We have just come from it.' 'Eh, the like o' that! Weel, when ye got oot o' the yett, an' tuk to the left han', ye sood hae hadden to the richt.' 'Is there no nearer way, then, than by going straight back again?' 'Oo aye is there! There's a near [$\nu\eta\rho$] cut across the fields. Just loup that wa'. Ye see a fit-peth? Weel, ye'll hae sometimes a peth, sometimes a ferm-road, and sometimes a grass park [she forgot two ploughed fields], an' the Lochgelly airon-warks aye in sicht, sae that ye canna gae wrang. But ye maun tak tent o' yon bull in the field, for he's no canny.' We found we had been excellently directed, and the result was a walk of five miles instead of three only, in bright sunshine and almost midsummer heat."

A STRANGE MATERNITY HOSPITAL.

Journal. "*May* 27, 1869.—I heard a strange story of a certain maternity hospital the other day: it seems to be in a deplorable condition for medical attendance, good food, bedclothes, and cleanliness. The filthiness especially is excessive, and there is no getting the better of it. Lately a determined effort

was made to improve matters, and a committee of ladies was appointed to undertake the cleansing department. They held many meetings, differed much with one another as to the means, failed utterly with such measures as they tried, discussed and fought the question again, could arrive at no definite conclusion, and finally gave up in despair the cleansing of the patients; whereupon one of the ladies wound up the controversy with the comforting reflection: 'After all, what does it signify whether they are clean or not, if they go to heaven!'"

A NITHSDALE GAMEKEEPER ON ORIGIN OF SPECIES.

Journal. "*August* 14, 1869. — *William Leny to the gamekeeper.* Jamie?

"*James Robson.* Weel, sir.

"*W. L.* Can you tell me when it was that blackgame first bred in this country?

"*J. R.* Weel, then, Maister Weellum, I dinna preceesely ken; for it was afore my time, at ony rate. But I hae heerd yer auld freen', Maister Alexander Mâxll, tell hoo and whan it cam' aboot. Ye see, when he and his brither Wallwood were langshankit lâds—halflin callants like, o' feifteen or saxteen—an' war wastin' their play-days in Dumfries, ane o' their gran'faither's fermers cam' ae mōrnin' at sax o'clock, ridin' a' that gait to the toon, to tell them the noos, that he had seen a blackcock on the ferm. What div ye think wad content thae twa lâds but they maun saiddle their pownies and be aff auchteen

miles wi' their guns to shuit the cock? Weel, didna the chiel tak' them ow'r the ferm, and better ow'r the ferm, up the braes an' doon the hows, thro' the wuds an' ow'r the heather; but deel a cock was to be seen. Sae the fella began to sweat juist awfu'—pairtly, maybe, wi' walkin' sae lang, but maistly wi' fear that the lâds might think he had been jokin' at them; whan at the hinner-en', up riz the cock, mair than a hunner an' fifty yârds aheed o' them. An' as he was whuskin' his tail at them ow'r the hill an' awa', says the fermer to them, 'Noo, gentlemen, there's the cock!' An' maist folk hae thocht that a' the black gem' o' Dumfries an' Galloway cam' o' that cock, saxty-aught year sin' syne."

A POISONING CASE AT MADEIRA.

Journal. "*Sept.* 30, 1869.—Dr Kelly, formerly physician at Funchal, in Madeira, called to acknowledge himself guilty of the sin of ingratitude towards me five-and-twenty years ago. He had been charged at Funchal with propagandism as a Protestant, and put into prison, after narrowly escaping being torn to pieces by a mob. In prison he became acquainted with another prisoner, charged, on the opinion of two Portuguese doctors, with having poisoned Don Luis Texeira Doria, an eminent merchant of Madeira. Dr Kelly studied the case, became satisfied there was no evidence, and induced the prisoner to have the whole facts sent to me for my opinion. My opinion was sent in the prisoner's favour, and on that ground he was set free. Dr Kelly maintained he was an un-

grateful man for having never thanked me for all the trouble I took. The ingratitude to me was not very clear, and I had no difficulty in granting him absolution. I think it very odd, however, that the prisoner himself should still continue guilty of the sin of ingratitude, when a case of Madeira would so obviously have absolved him."

ANÆSTHESIA AND CHLOROFORM.

Sir Robert took much interest in Sir James Simpson's great discoveries of the application of chloroform as an anæsthetic agent in surgery, and of the use of anæsthetics in labour. As Professor of Therapeutics he thoroughly investigated the whole subject of the discovery and use of anæsthetic agents from a historical point of view; and as much confusion still prevails in general society, and even in professional circles, on the subject, we give his notes upon it :—

Journal. "*June* 29, 1868.—So far as the general public is concerned, the 'chloroform discovery,' as it is familiarly called in general society, has been wrapped in a mist which is becoming denser and denser. Among the many who are ill informed on such things in the educated circles of society, constituting a great part of the middle class of the community, Sir James Simpson is thought to have discovered chloroform itself,—the state of the body called 'anæsthesia,' or removal of sensation, which chloroform and other substances induce,—and the application of this anæsthesia to the treatment of disease, the management of surgical operations, and

the painless delivery of women in labour! What does scientific history tell upon these points?

"In 1832, Soubeiran in Paris, and Liebig in Germany, simultaneously discovered chloroform. In 1835, Dumas ascertained its leading physical and chemical properties, and its correct elementary constitution. In 1838, Dr Formby, of Liverpool, first used it as a medicine inwardly, as a soothing antispasmodic. In 1842, Dr Mortimer Glover, a young Edinburgh graduate, discovered by experiment that it is a powerful narcotic poison to animals, and that one of its effects as such is to produce insensibility, or anæsthesia. In 1845, Dr Morton, of the United States, made the important physiological discovery, that whereas it was previously thought everywhere that no powerful narcotic poison can be administered so as to induce insensibility and powerlessness of the whole body, without extreme danger to life, and in general a fatal result, there is one poison of the class —viz., ether—which may be given to that extent, inducing intense, but temporary, anæsthesia, without risk to life, and without any ultimate injury to health; and Dr Morton applied this really 'scientific discovery' to the prevention of suffering from pain during surgical operations. In March 1847, the French physiologist Flourens proved that the inhalation of chloroform causes in animals precisely the temporary anæsthesia caused by the inhalation of ether; but, strange to say, did not step beyond the precincts of science into those of practice. In November 1847, Sir James Simpson was engaged

in searching among compound inflammables for a more convenient anæsthetic than ether, capable of acting in the same safe way, but in less quantity. He had tried several in vain, when a Liverpool druggist, Waldie, suggested chloroform, which turned out to be possessed of the advantages Sir James was in quest of. Chloroform almost immediately took the place of ether in Europe. But ether has always remained the favourite in America, where it is held to be as serviceable and much safer, and it has been lately recovering credit in this country." [1]

Journal. "*July* 25, 1870. — On asking Dr Matthews Duncan to repeat a remarkable statement he made to me a few months ago, relative to his concern with the discovery of the anæsthetic virtues of chloroform, he gave it me thus. One day when Sir James Simpson and he were in Dr Gregory's laboratory at the College, he (Dr Duncan) got possession of every liquid in the laboratory which he imagined 'would breathe.' Four or five bottles were thus carried off, and chloroform was one. At this time, the correspondence with Mr Waldie about anæsthetics, and the suggestion by that gentleman to try chloro-

[1] We have been favoured by Dr Matthews Duncan with the following note as to the anæsthetics at present most in use in London: "Nitrous oxide gas and ether are, I believe, more (much more) used now in London than chloroform or methylene, or any other anæsthetic. The new way of using ether makes it quicker than chloroform in its action, and it is believed to be less dangerous and less injurious in causing *prolonged* prostration and vomiting. The professional chloroformists of St Bartholomew's use chiefly ether." In Edinburgh, however, chloroform still holds the first place both in surgical and obstetrical practice.

form, had not been heard of by Dr Duncan. One forenoon Dr Duncan made trial of the chloroform. He had previously experimented on himself with various substances, but found none suitable. On trying chloroform, he was convinced that the article sought for was found. The same or next evening the trial was repeated by Dr Keith, Sir James, and himself. This was the trial which is now a matter of history; but the previous trial has never been noticed."

Dr Duncan was at that time assistant to Sir J. Simpson in his scientific work, and undertook this special inquiry under his general guidance.

BATTLE OF SPICHEREN.

Journal. "*Sept.* 8, 1870.—This morning I had a call from a German wine-merchant, who astonished me by the information that he had fought as captain of Uhlans at the battle of Spicheren. He confirms the statement of our special correspondents that the fight was fearfully bloody. The first attack up the hill was made in column, but was repulsed with great carnage. The Prussians then advanced in skirmishing order, suffered much less than before, and carried the heights. It may seem impossible for an attacking party to defeat a moderate force, armed with breech-loaders, and defending a good position, provided with a mere low breastwork; but Mr W. explains the Prussians' success by the unsteadiness of the French fire, due to the excitable character of their nation. The Prussians, on

the other hand, like other Teutons, are steady in their fire; and W. mentioned the following instance in point. He came upon some Prussian skirmishers, one of whom shouldered his rifle, pointed out a French general with his aide-de-camp, and asked whether he should bring them down. W. replied that he supposed it was his duty. Thereupon the soldier shot them down, one after the other; and instantly saluting again by shouldering his rifle, said, 'Both down, sir!' W. assures me that his regiment broke a French square. On my expressing astonishment at this — considering the universal opinion here, that no cavalry henceforth will dare to approach an infantry square supplied with breech-loaders—he observed that the French, though formed into a regular three-deep square, were so demoralised by the previous ill-success and losses of their own and neighbouring regiments, as to be very unsteady; and that this, together with their random and over-high firing, rendered them an easy prey to such bold horsemen as Uhlans."

BIGGAR CHURCH.

Journal. "*June* 8, 1871.—I went yesterday to attend the reopening of Biggar church, of which my cousin, John Christison, is the incumbent. This church, having escaped the fury of the Reformation, had been altered and patched in apt conformity with the wretched Scottish taste of the last century; but the original structure remained substantially so entire, that Bryce had no difficulty in de-

molishing modern defacements, restoring early harmony, and adding, conformably with the primary design, what was wanted for present suitableness. The result is an edifice of singular beauty, retaining all the attributes of a parish church of the sixteenth century.

"Every pew was filled with well-dressed people—in number about 800; the silence, attention, and quiet, were unusually un-Scottish. The opening of the new church was superintended by our Tron Church minister, MacGregor. His voice is a baritone, of great volume and apparently untirable, but too little exercised in the most impressive of all tones when aptly used, the *sotto voce*. He chose for his text a passage in Isaiah, in which occur the words, 'My holy and beautiful house.' He plunged into the middle of his subject at once, and treated it somewhat in the following way—not using, of course, the strong terms in which I have here and there rendered his polished sentences. Public worship is with man an instinct, except with a few utterly savage tribes, who appear to have no idea of a Supreme Being at all. Worship is gregarious—public; but public worship cannot be without a place in which to worship. Here, again, the instinct of man is not satisfied with even the noblest of natural scenery for a temple; there must be a temple built by his own hands, and a splendid temple—'a beautiful house.' In all grades of civilisation, and in all creeds, the temple is the noblest of edifices—nobler even than the palace. Other creeds have instinct to guide them

here. But we have higher authority; for twice did God give directions to His chosen people to build Him a temple, and on both occasions the injunction was given to spare nothing to render the edifice the most magnificent which human invention could devise or the imagination of man conceive. We have direct authority both for frequent 'assembling of ourselves together' for worship, and for doing so in an edifice the best which can be constructed. Let modern Christians look well to both these injunctions, therefore—better than they generally do, confound them! Then, as for public worship itself, that should be as choice and beautiful as the place in which it is held. Are we not told on the holiest authority to offer it with all our heart and soul and might? It is threefold—praise, prayer, and preaching. Praise was obviously a subject of great care with the Jews: their hymns were the grandest ever composed; their music sublime, so far as we can judge. The Greek and Romish Churches, adopting the Jewish psalms, improved the psalmody by modern musical adaptations. In our own country the Episcopalian musical service is no less ornate. Luther and Calvin did not neglect the aid to devotion derivable from fine music; and in Lutheran and Calvinistic Churches abroad, praise continues to be given out in sweet harmony. Why then, ye lubberly Presbyterian Scots, have you alone allowed your Church psalmody to become a screeching and squalling discord? It was not so in the early days of the Church of our Reformation. Therefore mend what you miscall psalm-singing, and that right

early. Praise the Lord with your best, and not your worst. Above all, cultivate psalm-chanting.

"Prayer is equally enjoined by divine authority, and suggested by the instinct and practice of man in all grades of civilisation. Though offered up directly by a minister, it should be so expressed that every member of his congregation may feel as if it were delivered by himself. For this end, perfection in prayer is the aim of all Churches; but they differ as to the means of attaining it. In our country, Episcopalians prefer a uniform set form for all prayers; Presbyterians repudiate rule and form, except as to the Lord's Prayer. The one uses a Liturgy, the other Freedom, in prayer. Each has its objectors and objections. A liturgy is apt to lead to inattention through monotony; freedom in prayer has the same tendency through slovenliness, sometimes through incapacity. A combination of the two would probably be superior to either.

"Preaching is in the same category with prayer as to the importance attached to it in different Christian creeds. The Romish Communion attaches little importance to it. Even in the Protestant Episcopalian service it holds quite a subordinate place to prayer. But in all Scottish Presbyterian Churches preaching is considered a primary matter. Englishmen often sneer at the Scottish thirst and preference for preaching compared with other services. Are they aware of our Lord's commands in this respect?—that He has ordered His disciples, with a frequency and urgency applied by Him to no other branch of divine

service, to 'preach the Gospel'? Strange ignorance on the part of our English brothers!

"This, then, is the sum of the whole argument. We have the highest of all authority for *periodical public worship.* We have the highest authority for the *place* of worship being the finest our hands can frame. The *nature* of worship ought to be governed by the same rule. Praise, prayer, preaching, ought all to be of our best. Amen!"

EXISTENCE OF THE ISLAND OF EGG.

Journal. "*7th Jan.* 1872.—Much merriment at the Senatus symposium discussion as to the existence of the island of Egg, claimed at last year's symposium by the Professor of Scots Law as his property. Its existence then denied; committee of inquiry appointed, which now report a successful voyage. Island found; landed upon; natives seen; food obtained — porridge and milk and whisky. Thereupon arose a debate.

"*Christison.*—Report unsatisfactory: *an* island found, but no proof it was Egg. Inquiry very loose. Have had better evidence myself from eighty miles off on the top of an Arrochar mountain, in the right direction both by compass and sextant—a beautiful gossamer vision of an egg-shaped island, small end uppermost. No other island in the west was that shape; the Professor of Geology will tell you so.

"*Geikie.*—Have trodden the whole of Egg; studied its structure; hammered its rocks; and Egg does exist: but it is *not* egg-shaped.

"*Fleeming Jenkin.*—How can a mere geologist tell you anything about Egg, who has trodden it under foot and smashed it up with his hammer? Go to the Professor of Engineering, and I say there must be a survey of its surface, also of its cross-section, to see whether it has a yolk, before it can be identified as Egg.

"*Sanders.*—Since our colleague, who imagines possession of such an island, is on the point of ceasing to be a bachelor, we must also be satisfied whether this yolk, supposing a yolk is found, which seems at least very doubtful, contains a yolkfellow.

"*Masson.*—It is clear the last voyage has been a failure, and the gossamer vision of Dr Christison goes for nothing. I still deny the existence of Egg, and move a new committee of inquiry, of which I shall be one. Carried by acclamation."

A DREAM.

"To A. C. St Fillans, 2*d September* 1872.

"I do not know whether my ascent of the Birren was the cause of an unusual incident on the following night. It seems that I took to roaring in my sleep so loud that I awoke the occupants of four bedrooms around. I dreamed that, after a short struggle, a lion lay down across my legs, and surveyed me with looks of satisfaction and good appetite; and that I on my back was exactly beyond reach of the hammer of Thor, with which I made no doubt that I should smash him up. Thor himself came to my relief in the shape of David, who, awakened by my

clamour, came in to ask what was the matter, and was, I daresay, much puzzled by my calling out, 'You blackguard, get off!'"

DINNER AT SIR WILLIAM GULL'S—ANECDOTES.

"To Mrs A. C. *27th March* 1873.

"The dinner at Sir William Gull's was a brilliant performance. Sir William told us the following delicious tale of stupid unreasoning faith in quacks. An elderly man consulted him about stomach complaints, but there was a formidable obstacle to diagnosis, in the patient being horn-deaf. 'What do you have for dinner?' roared Sir William into his right lug. 'Oh no,' was the reply, 'plenty of that! two miles regularly after breakfast, and two more before dinner.' 'How long do you lie abed of a morning?' 'Well, doctor, I shall be sixty-nine this day three weeks.' 'Be so good as put out your tongue.' 'All right there, doctor—regularly every day without even a grain of physic.' Without further parley the doctor gave him some simple prescription, the form and manuscript of which he seemed much to admire for a little; and then offering his fee he retired. But at the door he turned round, and, in the loud rattling tones of one long very deaf, called out, 'Doctor, can you cure deafness?' Sir William bowed, shook his head, and made his lips express 'No!' 'I thought so! You have been very kind to me! Therefore I make you welcome to this prescription, which he pulled from his pocket, adding, 'IT CURED ME.'

"We had a round of story-telling, and I my share

from a goodly budget. Dr Paget of Cambridge crowned them all for originality and newness. About twenty-five years ago a lone farmhouse in Essex was broken into one night by four burglars, with blackened or masked faces, and their shoes undertwisted with hay. Unluckily for them, in breaking in through the scullery they upset a plate-rack. The clatter awoke old farmer Parry, then about seventy years of age. He seized his double-barrelled gun, faced the intruders at the top of the broad staircase, fired, and shot the foremost in the heart, stone-dead in a moment. On the other three drawing back he called out, 'Come on, my lads! I've got another barrel for ye!' but they made a precipitate retreat, leaving the dead body of their comrade on the kitchen-table. The old man continued at his post, not knowing that they had left, and afterwards expressed to a friend his regret, saying, 'If I'd only known they were going, I could have got another shot at 'em through the window.' Two days afterwards Dr Paget got a note in the evening, from the old man's son-in-law, in these words: 'Dear Sir,—Mr Parry says that if you'd like to have the man he shot on Tuesday night, you are quite welcome to him, and he'll send him to-morrow in a horse and cart wherever you wish.'

"Professor Clark would have nothing to do with it, as the Anatomical rooms had already, in 1834, been broken into by a mob in search of a body. But his demonstrator was very zealous, and so he accepted the gift, and at once set to work upon it. It was intended that its disposition should have remained un-

known, but Mr Parry's prowess had broken up a gang of burglars and highway robbers, and many folks went to see the place and congratulate him. In answer to Lord Braybrooke, who inquired, 'But what has been done with the body, Mr Parry?'—'Oh,' said he, 'I've sent a present of it to Dr Paget!'

"Two days after the reception of the body, there arrives a blackguard, burglar-looking man at the Anatomical door, which was opened by the Cambridge 'Stirling'[1] of the day—a clever, prompt, resolute man of the same kidney. 'Well, friend, what do *you* want *here?*' 'You got a dead man two days ago from farmer Parry?' 'Oh yes, all right. We've got him.' 'I'm his brother, and want to see him.' 'But you can't see him.' 'But,' with a sidelong, threatening, murderous scowl, 'I must see him, and shall see him!' 'My good fellow, it's impossible! He's in an awful state by this time. He would turn your stomach. The look of him would haunt you all your days!' 'But,' a good deal mollified, 'I must see him some time.' 'Oh, surely, surely! Come back again six weeks hence, and—you shall see his skeleton!'

"Dr Paget afterwards saw old Parry in his son-in-law's house. He was a quiet-looking old man, dressed neatly in black, and wearing top-boots; having a fine fresh complexion, though drinking a bottle of port daily. He took one grain of calomel every night by way of balancing the port.

"Long afterwards Dr Paget was told by a nephew of Parry's that, hearing early in the morning after the

[1] See p. 321.

burglary that his uncle's house had been broken into and his uncle shot, he rode over from a neighbouring farm to see him, and found him quietly getting his breakfast as usual. 'Hollo, John! what brings you here?' said the old man. 'Why, uncle, I heard you were shot.' 'No,' said he, ''tis not I; 'tis somebody else. You'll find him in the kitchen.' And there, sure enough, was the dead burglar on the kitchen-table."

TESTIMONIAL SYSTEM.

"To Dr Beddoe, Clifton. 1*st December* 1875.

"This testimonialising has become the torment of my life. I obstinately refuse to give a testimonial, except on well-assured personal knowledge, so that I decline three applications for one that I grant. There is no other way of discharging such duty with a safe conscience. If all would act on similar principles, we should soon see an end of the ruling abuse of testimonialising. Did I tell you that when —— was a candidate for —— he instantly distributed shoals of a lithographed begging petition for testimonials to all and sundry here and everywhere? And that to those he wished most to honour he afterwards sent one hundred and fifty pages of letterpress in two vols., bound in morocco, chastely and elegantly gilt on edges, back, and boards? He did indeed; and I have presented my copy as a memorial of the curiosities of literature of 1875 to the University Library."[1]

[1] On Sir Robert's suggestion, the Edinburgh University Court adopted a rule that applicants for University examinerships should not present more than four testimonials—a system which has worked admi-

STATUE OF PRINCE ALBERT.

"To Dr Beddoe, Clifton. 19*th August* 1876.

"It appears to me that Steell has achieved a great success. —— indeed, who passes for a great Edinburgh connoisseur in art, calls the horse horrible; but there are connoisseurs who think they cannot pass as such without being cynical. On the other hand, I met the Prussian Consul in my survey last evening. We scanned the Memorial together, and he exclaimed, 'The Memorial to Frederick the Great at Berlin is acknowledged to be the grandest in Europe, and this is its rival.' I paid a visit this morning to Sir Herbert Oakeley, and in the afternoon to the Provost, to congratulate them on their new honours. Sir James Falshaw has always appeared to me an excellent fellow,—straightforward, resolute, and unselfish in doing good of all kinds; and therefore I could congratulate him conscientiously on his baronetcy."

FALL OF ROCKS AT SALISBURY CRAGS.

"To A. C. 25*th September* 1879.

"When I was a boy living in the Pleasance, my father one morning, when in the act of shaving, saw an immense mass of the highest part of the cliff of Salisbury Crags opposite him tumble down the long declivity. His first impression was that he had turned giddy."

rably. The testimonials, being thus limited, are sure to be from eminent men qualified to give an opinion, and who know how to give it; and a far better judgment can be formed than when shoals of testimonials, mostly from unknown men, have to be examined.

CHAPTER XIV.

PERSONAL CHARACTERISTICS, ETC.

SKILL AS A SCIENTIFIC WITNESS, SPEAKER, AND WRITER—MUSICAL ACCOMPLISHMENTS—PEDESTRIAN POWERS—CONVALESCENCE FORCED BY EXERCISE—YANKEE ON ARTHUR'S SEAT—SWIMMING—SPECIAL CONSTABLE IN 1832—VOLUNTEER CAPTAIN—EDINBURGH VOLUNTEERS AT SALISBURY—HARD DAYS AT ADVANCED AGE—THE GUARDS CRITICISED—MOUNTAIN-CLIMBING—SKETCHING—BRAEMAR—TROSSACHS IN SPRING.

In his autobiography Sir Robert explains the sound principles on which he acted in giving scientific evidence in courts of law, particularly in criminal trials. Favoured as he also was by natural ability, quickness of apprehension, and coolness of temper, he was armed at all points to encounter and baffle alike the insidious and the bullying species of advocates, and as the accuracy of his statements and his skill in fence became widely known, he was rarely troubled with a cross-examination of any length. We well remember how our filial pride was aroused when we were present as mere lads at a trial in which our father was engaged. We were seated near one of the macers,

who had brought a friend with him, to whom he was explaining the mysteries of the court, and the characters of the actors in it, in loud whispers. When "Dr Christison" was called, the macer got quite excited, and exclaimed to his friend—"Eh, mon, ye're lucky the day; ye'll hear graun' aividence noo!" But we can adduce higher testimony than that of the honest macer. The Lord President of the Court, at the dinner given to Sir Robert on completing his fiftieth year as a professor, spoke of him in the following terms: "Dr Christison, soon after his appointment as professor, became engaged as an expert in courts of justice, and from 1829 to 1866 he was engaged in every case of importance that occurred in Scotland; and his services were also frequently required in English cases of the same description, one of which, of a more recent date, may be mentioned—the trial of Palmer for poisoning with strychnine—in which I believe I may say that the Professor's opinion, as delivered in court, was regarded as a perfect model of scientific evidence. In regard to Sir Robert's qualifications for this particular function, I feel myself privileged to speak with particular confidence, for I have myself been frequently associated with him both in court and in private consultation. I have examined him, and heard him examined, as a witness upon every variety of questions in cases involving issues of life and death, and the most important issues in regard to private interests that could be tried between man and man—cases requiring perfect knowledge of almost every branch of medical science—and I never saw him

at fault. The reason was not far to seek, for the Professor went into the witness-box not in the spirit of a partisan, but in his proper office as medical jurist, to aid the Court and the jury in the elucidation of truth, and in securing the ends of justice. . . . He formed his opinions after much and careful deliberation, and when they were once formed they were not to be shaken. The consequence was that cross-examination with him was comparatively useless. He had nothing to conceal, and if it came to a mere conflict of intellects between the Professor and the examining counsel, the odds were the Professor would have the best of it. Another great quality in Dr Christison's evidence was, that it was almost impossible either to misunderstand or misrepresent him; because, as the course of the reasoning by which he arrived at his result was logical and clear, so his language was terse, unaffected, and precise."

The sentence just quoted may with propriety be extended in its application to Sir Robert's style as an orator. He was by no means fond of public speaking, yet he had no difficulty in it even without previous preparation; his language was well composed and accurate, "terse, unaffected, and precise;" and if he used few oratorical devices, his reasoning was always "logical and clear." The same qualities are found in his writings, of which no less an authority than the late Sir William Stirling-Maxwell has thus spoken: "Eminent among men of science, Sir Robert Christison is likewise remarkable for the literary skill with which he has placed before the world the results of

his observation and research. The celebrated work on Poisons, apart from its scientific value, is admirable for the manner of its execution. The chapters on Medical Jurisprudence may be well studied by the non-professional reader for the grace and charm of their appropriate style. It has been said that one man's meat is another man's poison, and it may be added that 'Christison on Poisons' is a book full of pleasant and wholesome intellectual food for the general reader."

The following anecdote gives a good example of Sir Robert's readiness as a public speaker. On the occasion of the public dinner to celebrate the fiftieth anniversary of his Professorship, as the time for the speeches drew near, one of the reporters sent him a message asking if he could supply the press with notes of his intended speech. He replied, "Tell him that I have not even yet made up my mind what I am going to say." The speech, necessarily a long one, was clear, precise, and unhesitating.

MUSIC.

As a singer, both as a soloist and in part-songs, Sir Robert took a high place among the amateur musicians of Edinburgh. He was gifted with a bass voice of unusual power and good quality; and although he never had time to take lessons, constant practice in quartette-singing, and in small musical societies, brought his voice to some degree of cultivation. He had only the most cursory knowledge of the science of music, and used to quote,

as a signal proof of the low condition of music in Edinburgh thirty years ago, that people regarded him as an authority on music, simply because he was rather prominent as a singer in society. Nevertheless, music in Edinburgh owed a good deal to him, as he was one of the first amateurs to disregard and oppose the absurd remnant of Puritanism which caused the cultivation of secular music by societies or clubs to be considered as a somewhat dangerous accomplishment, allied to dissipation. When a number of young men, with some hesitation, met together about thirty-five years ago to form one of the first choral societies in Edinburgh, Sir Robert encouraged them by his presence, and congratulated them on the changed state of opinion which enabled them thus to come forward, contrasting it with the stricter notions prevalent in his own youth, when no attempt of the kind could have been ventured on.

We are indebted to Dr Peddie for the following notice of the musical doings in which Sir Robert took a part. "Dr Christison, Dr Bennett, Dr Maclagan, and myself, were among the first gentlemen amateur vocalists who ventured to perform publicly in Edinburgh. We had sung much together, and were known as the singing doctors, at parties, and at dinners of the Harveian Society and of the Colleges of Physicians and Surgeons; but it was not till the 20th December 1851 that we performed in public, at a concert in the original St Cecilia's Hall, under the patronage of Lord and Lady Murray, for the benefit of the widow of Mr Mainzer, when about £70 were realised

for her. Dr Christison, Dr Maclagan, myself, and Mr John Christison appeared as glee and quartette singers in the Music Hall for the first time on 27th March 1863, at a concert for the benefit of the Edinburgh Artisan Rifle Companies. This public appearance of professional men as amateur singers made some sensation at the time. We performed subsequently at several of the annual concerts of the University Musical Society. Dr Christison was one of the most active and enthusiastic members of the Amateur Vocal Club, from its formation at Dr Bennett's house on 19th April 1852 till the final meeting in 1876."

Sir Robert's voice retained much of its power and quality till he was past seventy, and he did not give up taking an occasional share in part-singing for several years afterwards. The last occasion on which he joined in anything of the kind was on the eighty-third anniversary of his birth, when he took the bass part of Bishop's well-known glee, "Mynheer Van Dunck."

EXERCISE.

From his earliest years Sir Robert was fond of athletic exercises, in which he was well fitted to excel from the vigour of his constitution, his well-proportioned, somewhat spare, but muscular and agile frame, and his stature, which was close on six feet. When past the age for violent exertion he maintained his strength by regular walking exercise, which he took at a good pace. Even when long past middle life his ordinary pace was four and a half miles an

hour; at an earlier period it was often above five miles an hour, and we have known him to cover twenty miles in four hours. This is no extraordinary feat in itself; but it was his capacity of combining such efforts with the labours of a professional life that was remarkable. He attributed the preservation of his activity in old age mainly to this attention to exercise, together with great moderation both in eating and in the use of wine. And although in his younger years he was in the habit of studying far into the night, he abandoned this practice soon after he became a professor, and generally retired to rest before eleven.

One of his favourite feats in youth and manhood was to race up the steep and rocky ascent of Arthur's Seat from the head of Hunter's Bog. He has left no record of his shortest time; our recollection is that it was under five minutes. At all events, we ourselves made a trial, and took a minute and a half longer than he did, besides arriving at the top so breathless that we had to lie down, and the sky looked black to our sight. He used also to race to the top from the University, which he could do in twenty-two minutes when at the age of fifty, sometimes with companions or friends from a distance, to whom he acted as *cicerone* on the hill; and he was wont to say that he only once met with his match in a strong fellow from the north, who would probably have beaten him had he not fallen on an ingenious ruse, which turned the scale and landed his rival at the top completely out of breath. His

friend, astonished at the result, as soon as he recovered breath, said, "I can't understand, Dr Christison, how I, a stronger man than you, and accustomed to hills, have been completely winded by this steep but short climb, while you seem nearly as fresh as when we started." "Aha!" said the Doctor, "you did not notice that I set you a-talking, while I only threw in a monosyllable now and then to keep you going—and that's the explanation!"

The few letters we have in which Sir Robert writes of his pedestrian powers belong to the period when he was past middle life, but are the more interesting on that account as showing how the habit of vigorous exercise may be prolonged into old age by constant practice. For it is probable that many others might succeed as he did, if they did not too soon give way to the lethargy apt to be produced by advancing years. But, after all, age conquers in the end; and in one amusing letter, which we give, he records the effects of time upon his pace in ascending Arthur's Seat by the usual path from St Margaret's Loch. Another letter tells of a swimming feat,—for, among other athletic accomplishments, Sir Robert could boast of considerable powers as a swimmer.

WALKING FEATS.

"To Mrs A. C. 25*th Oct.* 1857.

"I was disappointed of my usual four days' trip to Loch Long; but on the day on which I ought to have gone, I began in a fit of muscular restlessness to climb Arthur's Seat, and walk round it, and take

six or eight miles on foot off my incidental railway journeys in pursuit of practice and pelf; and the result is that I have now much more of the physical sensations of the former man—more than I have had since last midwinter. The day before yesterday, in coming from Dundee, I left the train at Granton in the evening, and walked up, three miles in thirty-five minutes—which, if you will only try it, you will find is no small feat to do up-hill at six P.M. Another ardent pedestrian whom I overtook on the way disputed the palm of speed with me for a little when I came abreast of him: but I soon put him *hors de combat* by showing I had greater speed in store, if necessary. This sort of thing—a common amusement with me long ago—I have not in late years thought myself able for."

"To A. C. 24*th Jan.* 1858.

"On Friday, being at Kirkcaldy, with more time than enough, I walked, as I generally do, from Kirkcaldy to Burntisland, for exercise and amusement. A worthy gentleman of my own age, who thought he could walk my pace, must needs escort me half-way, and he left me only forty minutes for the next three miles. In my zeal I did the last two in twenty-two minutes—and that is a feat which you may boast of for me. Nor was I much tired, though out of training, wearing a greatcoat, and carrying a heavy plaid. A good little post-boy in a pony-cart offered me 'a ride.' It was near the end, when he must have thought me about to give in. But I did not."

FORCING CONVALESCENCE BY EXERCISE.

"To Mrs A. C. 31*st March* 1870.

"The abominable strife about medical reform has suddenly revived, and as no one else can fight the battle of the Universities, I have had no alternative but to plunge into the thick of the struggle. When about to go to London in the pursuit of this my calling, I first damaged my right shoulder-joint by a very abrupt fall on the icy pavement of Charlotte Square. A few days afterwards I fell into one of my troublesome fevers, and when fairly convalescent from that, took a furious influenza, which kept me from College work for a whole week. This series of misadventures covered a period of a month. During the last three or four days, however, when improving weather enabled me to go freely out of doors, I have been applying with success my old convalescent *regimen* of forced exercise, under which I have made such good progress that I do really imagine that if there were a 'Cobbler'[1] at the door, I would be seated on his head to-morrow forenoon: at least I should try."

QUIZZING A YANKEE ON ARTHUR'S SEAT.

"To D. C. 26*th July* 1875.

"It looked so clear to-day that I ascended Arthur's Seat in the afternoon. What took me nine minutes in 1825, and fifteen in 1855, required twenty-two in 1875. I was grievously disappointed in the view,

[1] Ben Arthur, near Arrochar, commonly called "The Cobbler." See drawing, p. 390.

but, so far as limbs are concerned, there was no difficulty at the pace. My only adventure was when I had just left the summit to descend. I met two gentlemen on the ascent, the nearer of whom—an indubitable Yankee, but with a round, rubicund countenance, a decided superfluity of fat, and a rather winning expression—put the question, 'How far from the top, mister?' I replied, 'Only five-and-twenty steps. There is the top pinnacle inviting you.'

"*Yankee.* Oh, indeed! Thank you! An onkimmonly stiff climb this, mister!

"*Scot.* Well, it's not the hill, but your weight, that makes it so stiff.

"*Y.* Oh! Is it *so?*

"*Sc.* Yes; but if you do this twice a-week, you'll soon get easily up, by bringing yourself down!

"*Y.* Ah! I see!

"*Sc.* Provided you don't feed more in proportion.

"*Y.* Oh! I perceive.

"*Sc.* Yes; and then you'll be in training for what lies before you: for this is nothing to what you'll have to do when you go farther north.

"Whereupon the Yankee gave me a grin and 'sich a look,' which plainly said, 'Onkimmonly frank for a Britisher. I'll ask no more questions of that chap, who gives me more answers than I want.'"

RETURNING VIGOUR AT THE AGE OF EIGHTY.

"To A. C. BALMACNEIL, 25*th Sept.* 1879.

"I have enjoyed our quarters here very much, and have been uniformly quite well. On starting on the

road or hill-side, I feel as if I were able for any of my former undertakings, but the third mile begins to try me. I have gone eight miles, however, without much fatigue, and have climbed hills of 900, 1050, 1500, and 1750 feet above starting-point. The last made my legs ache, but next day they had quite recovered. Yesterday I went up Birnam Hill, 1000 feet above the railway station, in fifty minutes, and was not at all fatigued."

SWIMMING IN ROUGH WATER.

"To Mrs Beddoe, Clifton. 19*th June* 1870.

"Your brothers in Queensland surely have got the elements of success—Robert especially—to extricate himself from such peril. You will laugh at me for envying him his swim. The fact is, that when young, and a fair swimmer, I had an extreme curiosity to swim a river in flood. I once went to sea in a north-east storm similarly impelled, and found no great difficulty except in landing again. My two companions were tumbled over and over by the breaking wave; but I kept my feet, though very nearly overthrown too."

In his boyhood and youth, as we learn from his autobiography, Sir Robert was of a rather combative disposition, and he was prevented from excelling as a boxer solely by his near-sightedness. Perhaps as a consequence of these warlike tastes, he took much interest in military affairs, and no reading pleased him so much as military histories and memoirs. The only

practical outlets for these tastes which occurred to him were in 1832, when he acted as a special constable in the Reform riots, and in 1861, when he became a volunteer. We are enabled to give an account of his exploits in the first of these capacities, as we took notes on one occasion immediately after he related them. We have also a number of letters dealing with his volunteer experiences. He took a prominent part in the movement at its origin in 1859, in order to encourage the University students in organising a company; and it is curious to find him at first deprecating the idea of donning uniform and becoming an executive officer at the age of sixty-two, yet assuming the command of the University Company two years later, and continuing to act as its captain till he was 77! With him it was no nominal office. As he was wont to say, he could do nothing by halves, and he discharged all the duties of captain with the utmost faithfulness and regularity as long as he held command. His tall, erect, and commanding figure and snow-white hair made him very conspicuous at the head of his company on parade, or as he led his men in skirmishing order over Arthur's Seat. The impulse which he gave to the action of the students is yet maintained, and under his successor, Professor Turner, the company is stronger than ever. We feel sure that it will please many of those who served under Sir Robert to read his notes of the earlier years of the Company. It will be seen that in course of time Sir Robert thought himself a good enough soldier to criticise her Majesty's Guards.

A SPECIAL CONSTABLE IN THE 1832 RIOTS.

"When the Tory Dundas defeated Jeffrey in the election contest for Edinburgh, a great riot took place. I was one of 300 special constables, all active, able-bodied young men, newly raised, undrilled, and armed only with their own sticks, who were assembled in St George's Church, to be ready for any service required. We were under the command of Captain Craigie, R.N., and I was captain of a company. Towards dusk of a summer day we were ordered to march against the rioters, who were engaged in breaking the windows of Mr Dundas of Arniston's house, next door to Barry's Hotel, Queen Street. He was not the successful M.P., but a relation, a Tory, and unfortunately had his name on the door. I commanded the leading company, and on arriving at the head of North Charlotte Street, I saw a dense mob in front entirely composed of men,—not a boy or woman among them. I sent back a message to Captain Craigie, who oddly enough had taken his place in rear of the column, that I thought he should increase his front. But instead of occupying the whole width of the street, and driving the mob before us, as I expected, he simply doubled our front; and in this formation of eight abreast the column marched right through the mob, and halted in the middle of the street, Albyn Place on our left, Queen Street on the right. Being in front, I could see that a large number of the mob were standing at the head of Wemyss Place with their hands in their pockets or under their

trade aprons, close to some masons' sheds at the present garden-side, Wemyss Place being then unfinished. I knew that they were concealing stones, and I said to my men, 'When we get orders to charge, we must rush at these fellows as hard as we can. We will get one volley, but don't give them time for another.' The Riot Act was now read very rapidly by the magistrate, who was hit several times by stones; but as he had a thick greatcoat on he was not much hurt. No sooner was this ceremony over, than Captain Craigie, without any preceding directions, shouted—'Gentlemen, charge!' Mr Syme, who was looking on from his window in Forres Street in great anxiety, as he had many friends among us, said that the body of constables seemed instantly to explode, as it were, charging in every direction, and driving the mob before them. Some hard blows were exchanged, but no serious resistance was made. My own immediate followers, about twenty in number, made at once for the men at the sheds, receiving a volley which instantly disabled four of their number. My brother John was at once brought to a standstill by a sharp-edged stone, which cut through the skin at the junction of the foot and leg, severely bruising the tendons of the extensor muscles. A missile (a broken bottle) coming directly towards me, I dodged, but it struck the man behind me, cutting the scalp so that it hung over his ear. Dr Gregory somehow got separated from the rest, and was badly mauled. The rioters fled so rapidly that I believe few were struck by my party; but as I rushed down the street, I saw

one of my men who had got a rioter down, and was coolly sitting astride him and belabouring him with his stick. As I passed, without stopping, I seized him by the collar, and pulled him off his victim.

"After this victory over a mob which I estimated at 5000 men, we marched back to St George's; and about 11 P.M., Captain Craigie, addressing our somewhat diminished force, said: 'Gentlemen, you are required to put down a riot in the Water of Leith village. You will be supported by a troop of dragoons and a company of infantry.' Off we marched, I again in front. The dragoons opened up to let us pass, and then the infantry, 42d Highlanders I think, and it seemed as if we were in for something very serious. On reaching the top of the steep hill that descends to the Water of Leith, I was struck by the silence that prevailed, and could see nothing unusual but a slight glimmer and flicker as if from an expiring fire. I therefore halted, and sent two men to reconnoitre. They found that we were too late. The mob had completed their vengeance on Bailie Brown, the deacon of the weavers, who had voted for the Tory, by carrying out all his furniture into the little square in front of his house and burning it. The last embers were now dying out, and the rioters had disappeared.

"Next day we had batons served out to us—formidable ashen staves about 3 feet in length—and got some elementary drill and good advice from Colonel Macdougall of the Highlanders. We again assembled at St George's in the evening, and got orders to clear the square. The force was divided, my detachment

going by the south side. The mob gave way before us, but one fellow in front of me went very slowly, delaying our advance. I warned him several times, and at last said, 'If you don't take this warning, I shall certainly strike you.' He merely turned his head over his shoulder, looking at me, and walked on as before. So I took a good swinging blow at him. To avoid it he arched his body forwards. This made his coat-tails fly out, and to my astonishment, quite as much as his, the baton carried away the tails as cleverly as if cut by a sword! This comical incident caused a general laugh on both sides, and put the mob into such good humour that they dispersed without more ado.

"In the High Street the special constables were far too few in number; they were rashly led into the middle of the mob, and many of them were badly injured."

A RIFLE VOLUNTEER.

"To Mrs A. C. 1*st August* 1859.

"You may have observed that I have lately come out in a very novel capacity. The newspapers represent me as a great warrior, a patron of riflemen, and profound in weapons. I must tell you how this fell out. Our students, among the foremost, took up in a practical way the outcry of the unpreparedness of this country for defence in the event of attempted invasion. They resolved to have a meeting, and among others I was invited to attend. Going without any precise object or idea of what was to be done, but out of civility more than for any other reason,

I suddenly found myself in the chair as senior Professor, with 500 students before me. As I entirely approved of the movement, this beginning naturally led to my becoming its leader; and as I never will fail or do a thing by halves if I can prevent it, I worked the matter out, until at length we have ninety first-rate young fellows on the roster of the University Company: most of those still in town are in regimentals; and they are so far advanced in drill that the sergeants had forty of them out on Saturday last in the Queen's Park, executing all sorts of company evolutions as skirmishers at double-quick time, over the Miller's Knowe, up Salisbury Crags, here, there, and everywhere, to the amazement of crowds of little boys, who suddenly felt themselves entangled and overtaken in the race, and to the arrestment and admiration of every man, woman, child, carriage, and beast of burden that passed through the park. Then some are already first-rate shots. One of them, practising on Portobello sands at 250 yards with a thin stick for his target, split it just as the Prince of Wales passed, who applauded, and stopped to witness and commend some capital additional performances. So Louis Napoleon may come *here* whenever he likes: he must dispose of forty riflemen before he will be able to proceed any farther; and if he goes far, he will soon have to dispose of the other fifty.

"Now don't you begin to fancy you see me in a grey uniform, in waist-belt, shoulder-belt, and spectacles, running up and down Arthur's Seat whenever a little boy (a very little boy, but a most admirable bugler)

sounds the advance, double, and so forth. I take a paternal care of my dear lads, and have been often a witness of and encourager of their drill,—capital exercise it is to go over to the College after dinner (instead of sleeping on a sofa in the hot evening), and move about the College area as a critic. But although the Provost, as colonel, pressed me to take the command of the University Company, and afterwards urged me to be Surgeon to the Regiment, I declined these high honours, and the chance of 'a peerage or Westminster Abbey,' and am still in a black frock-coat and round hat, with no other designation than that of Professor-Superintendent. I am in hopes that I may be made Schoolmaster-Sergeant to the Edinburgh Regiment, or Inspector-General of Rifle Hospitals in Scotland. Who knows? But though I am still in mufti, and likely to be, John has taken the shilling, laid it out as far as it will go in uniform, and joined the Writers to the Signet Company."

RIFLE PRACTICE.

"To A. C. 1*st September* 1859.

"I have not yet either donned the rifle uniform or girded on the sword. Having determined, however, to make up my own mind as to the qualifications for rifleman as well as for doctor of medicine, I set myself diligently, with John and David, to blaze away at a three-foot-square target at Dalswinton with an American rifle, sighted only for 150 yards. We were all tyros—for I don't suppose any of the three was more practised than myself, who had not pre-

viously fired twenty shots all my life. Therefore we began fitly at 150 yards. But you will see from the accompanying diagrams of our shooting that we were all qualified for longer distances, and that I had been born a rifleman. I made several bull's-eyes: the first could not be found for some time by the marker, our host, Mr Leny, who, when he did find it in the absolute centre of the black, said quietly, 'Who would ever have thought of looking for it there!'"

CAPTAIN OF VOLUNTEERS.

"To A. C. 16*th June* 1861.

"You are a little surprised that I have undertaken the duty of Captain of our University corps. In the first place, military affairs are almost a second nature to me. There is nothing in the duty which to me is so hard to learn as to be more than a pastime and wholesome exercise; and had it not been for my recent accident and subsequent illness, I should have been now familiar with all duties connected with the field in time of peace. The other company work is light enough, and, with the potent assistance I have, is very easy indeed. I have a capital lieutenant and most excellent young friend in Mr Turner, our Demonstrator of Anatomy; my ensign had served as drill-sergeant, and made a professional almost unnecessary. But my main reason for accepting the office was, that the company consisted of a set of remarkably good young fellows, zealous as students, and zealous as riflemen,—that they both deserved and required a Professor at their head to keep them

on a good footing in the battalion, all of whose captains are men of position in Edinburgh,—and that there was no other Professor who could have accepted the charge. The University lads are extremely well behaved and well drilled; many of them are capital shots, half-a-dozen of them first-rate; and they are a fine-looking set of chaps, both individually and as a body. Dr Duncan's eldest son, now my covering-sergeant, I call the 'Premier Grenadier de l'armée': he is a very handsome fellow of six feet and half an inch, probably the first athlete in the battalion, a first-rate shot, and as good a man and student as he is a volunteer. If I am not mistaken, you will hear of him making a figure in the course of time in the Edinburgh School of Medicine."

"To A. C. 2*d February* 1862.

"I am never so well as after an hour of officer's drill at four o'clock on Mondays, and an hour of battalion drill of two companies in the Corn Exchange at seven in the evening on Tuesdays. It is famous good exercise and exciting to me, as one is learning something totally new, which is to me always a special pleasure. I can see now that company and battalion drill is good hard study, not to be got at in a day or two, as many foolish young officers have imagined. And, in good truth, there is a near approach in the 'Field Exercise for 1859' to nice mathematical problems, which constitutes with me its attraction, and which, I doubt not, is the reason why some find the book, and the drill too, a *pons asinorum*."

A HARD DAY AT SIXTY-SIX YEARS OF AGE.

"To D. C. 22*d March* 1863.

"The review of three hours and a half in honour of the Prince of Wales's Marriage was nothing more than a healthful exercise to me, although it was fearfully cold, owing to an east wind sweeping the Park with force. I saw one youth so chilled that he had to leave the ranks; and multitudes spent the 'stand-easy' occasions in dancing about and in slapping their limbs and bodies with their hands. Anticipating the cold, I was well provided with an under-vestment, and felt it very little indeed. I had afterwards to stand for one hour and a half at the Banquet in the Parliament House, from which I thought it wrong for her Majesty's Physician to absent himself. After dinner I walked sharply to the College, on account of a growing fear that the students, balked of their great torchlight procession, might try a more dangerous one on a small scale; and I arrived just in time to find about 40 of them trying to initiate a small *émeute*. This was put down, and I got home in time to set out with all the house to see the illuminations, which took up an hour and a half. I was able to walk to College as usual next morning."

ANOTHER HARD DAY AT SIXTY-NINE.

"To A. C. 3*d July* 1866.

"Yesterday evening Colonel Macmurdo reviewed the Volunteers of Mid-Lothian on Arthur's Seat, and trotted us over a good deal of the hill, of which he seemed to have a great admiration as fighting ground.

Between the previous inspection, the manœuvres, and returning home, we had five hours and a half of standing and movement; but this did not at all fatigue me. Unluckily, however, I yielded to the tempter, in the shape of Major Edward Gordon, better known as Sheriff of Perthshire, and dined with a party of officers, sixteen in number, at the New Club. Yes! dined at 10 P.M. on salmon, chicken, sherry, champagne, claret-cup, and first-rate claret, returning home at 1 A.M.—not a particularly good example to be set by an elder of the Kirk on Sunday morning."

EDINBURGH VOLUNTEERS AT SALISBURY.

Journal. "*Sept.* 16, 1872.—Mr Lloyd Wright confirms the strange story that the Edinburgh volunteer companies, at the autumn manœuvres at Salisbury, surprised the Grenadier Guards, taking their tents, packs, furniture, and post-office. The Edinburgh companies formed the advance of the Northern Brigade, which started in the darkness to attack the enemy on their advance. The Guards were completely surprised; they carried off nothing but their rifles and uniforms, and some fled in their shirt-sleeves to escape capture. Wright speaks with pride of the marching of the two companies under Colonel Macdonald and Adjutant Hills. They always stuck close to their leaders, the Rifle Brigade, though on one occasion they did 21 miles, and on another 27. None of them fell out on the way; but a good many did of their fellow-companies from the Victoria Rifles and

the St George's Battalion of London. Their marching past was perfect, and elicited applause at the moment they passed the Prince of Wales—one of the lookers-on calling out—'Well done, Auld Reekie!'"

THE GUARDS.

"To D. C. 26*th May* 1886.

"I have got several good lessons from H.M. Guards. I have seen company after company wheel at the corner with a wavy line, such as would do credit to a volunteer battalion. I have seen a battalion of 640 rank and file wheel into line, after marching past, so that the leading company had to get the order—'No. 1 Company, seven paces left close.' I also saw that five out of ten captains did not know precisely what to do when they proceeded to *arranger* themselves before coming to the saluting-point. I likewise saw one lanky captain who had been permitted to stick to a stoop at the hip-joint, such as Adjutant Hills and the Sergeant-major could not cure in the case of a grenadier recruit in No. 4 Coy. Q.E.R.V. Brigade."

ON VOLUNTEERING.

We have been favoured by Colonel Davidson, formerly Sir Robert's commanding officer, with a letter, and an address to students, from which we extract the following:—

"To A. C. 17*th March* 1886.

"I shall never forget the help I got from Sir Robert at the very outset of the volunteer movement, and the wonderful

tact he showed in dealing with some students who were hostile."

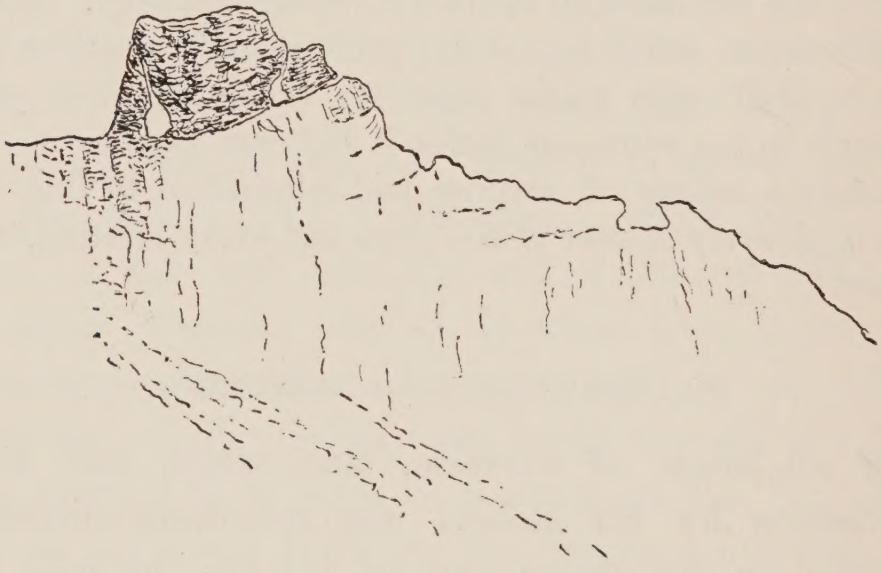
ADDRESS TO STUDENTS.

"Now I believe it is this sense of duty to our Queen and country which is doing most to maintain and increase our volunteer force. I believe that in the regiment with which I have the honour to be connected, this principle is in full operation, and I know of no individual in the Edinburgh regiment in whom this principle is more strikingly manifested than in the commandant of the University Company. Knowing the nature and extent of his professional avocations, and how he of all men might plead for exemption from strict attention to his volunteer duties, it has ever been to me and to others a matter of surprise and admiration to find him present at every muster of the corps and every meeting of its officers."

HILL-CLIMBING AND SKETCHING.

Of all kinds of exercise, that which had most fascination for Sir Robert was mountain-climbing. Usually, in the latter part of his life, he took his autumn holiday in the Scottish Highlands, where he could give full play to his ruling passion. Besides the mere pleasure of climbing, and the enjoyment of the views opened up in ascending, he was enabled also to indulge his taste for botany, geology, and mineralogy. In 1817 he ascended Ben Nevis, and brought down a piece of rock from the very top, and labelled it, "This was the summit of Ben Nevis in 1817." In 1854 he made a tour in Skye with Dr Sharpey, and wrote an interesting account of it, which, however, he did not publish.

In his latter years he began to take outlines of the distant ranges seen in his mountain ascents. This practice, at first intended merely for purposes of identification, led to the development of a latent faculty for drawing. He gradually introduced more detail in his outlines, and even at times made sketches of mountain scenery from below. He avoided foregrounds and near objects, and rarely attempted



TOP OF "THE COBBLER."

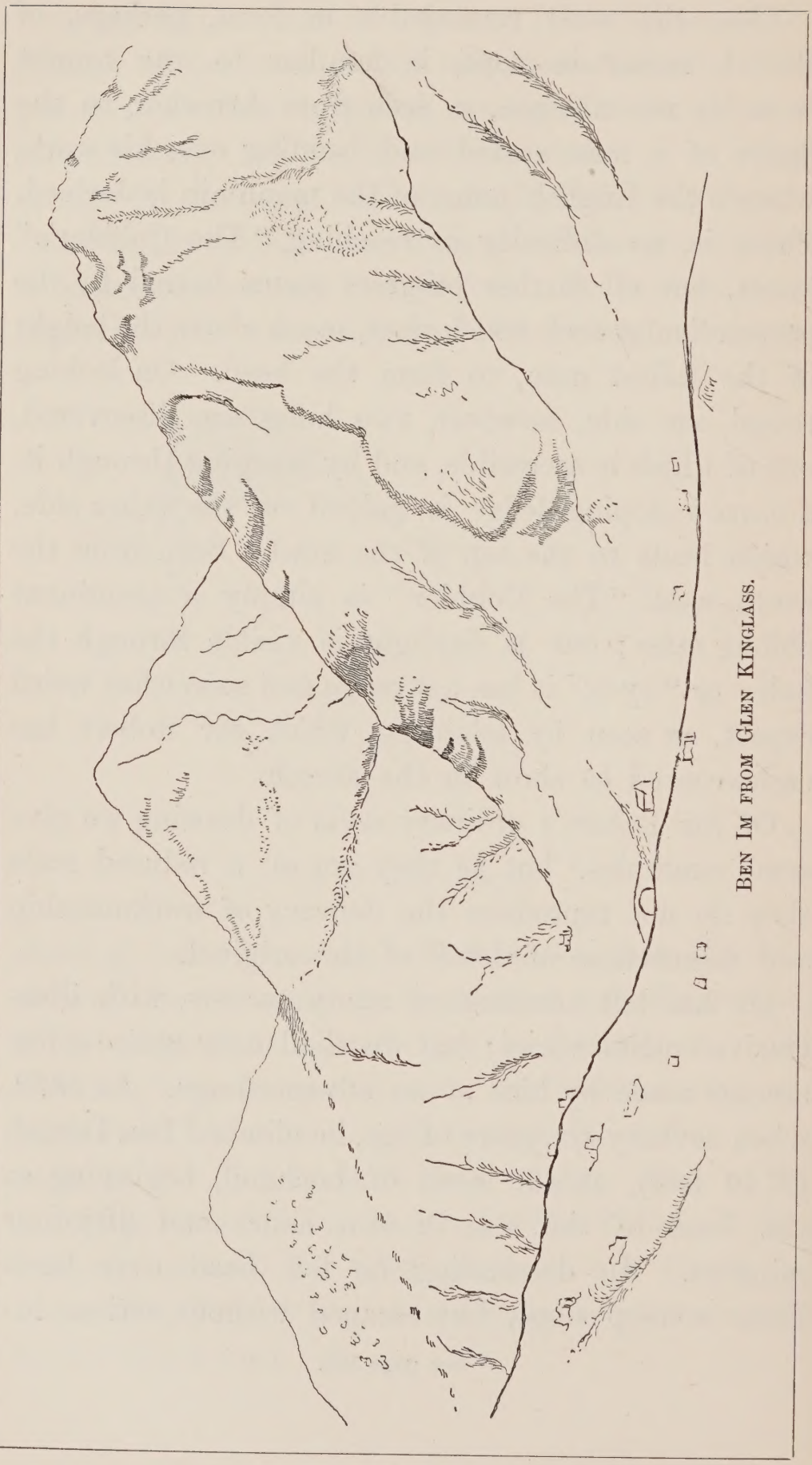
shading, but his occasional efforts in that direction showed that he would have attained no ordinary skill if he could have spared time to practise it. His sketches, begun in pencil, were afterwards traced over in Indian ink with a quill brought to a fine point, such as few but himself could make. One of his drawings shows the summit of "The Cobbler" (Ben Arthur), as seen by telescope from the Corrie between Ben Donich and the Vrack, about two miles to the south-west.

This, the most remarkable in form, perhaps, of British mountain-tops, is familiar to the tourist from its resemblance, as seen from Arrochar, to the figure of a man seated and bending over his work, whence the English name of the mountain is derived. There is no difficulty in reaching "The Cobbler's" knees, but all further progress seems barred by the perpendicular rock which rises, much above the height of the tallest man, to form the head. On looking round one side, however, two holes are discovered, one of which is accessible, and by creeping through it, a narrow sloping ledge is gained on the other side, which leads to the top of the head. Seen from the south-west "The Cobbler" is simply a prominent oblong mass; but as daylight is visible through the holes or "eyes," it has a strange and somewhat weird aspect, as seen by telescope, which Sir Robert has endeavoured to show in the sketch.

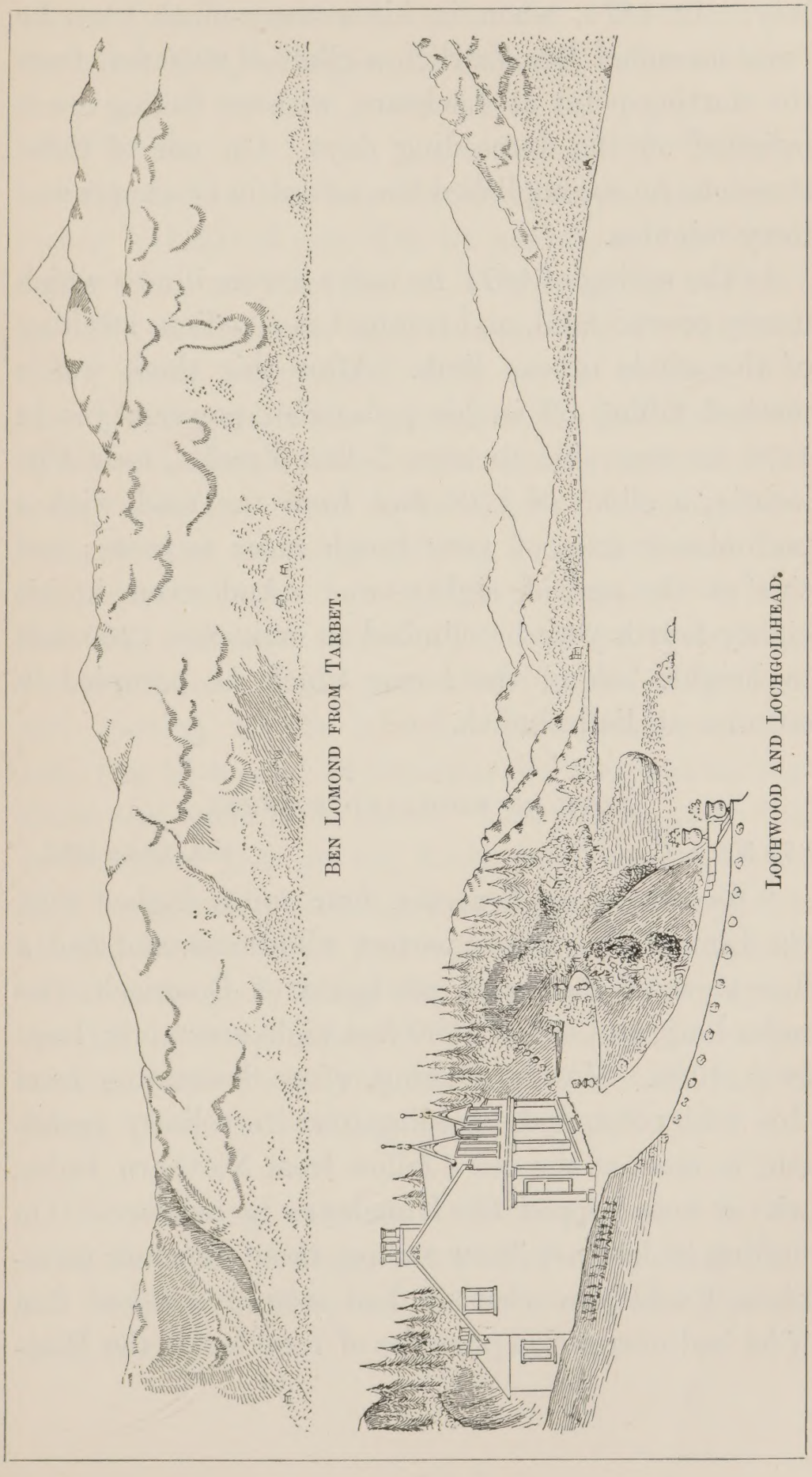
Of Sir Robert's ordinary style of drawing we give some examples,[1] but as they are on a reduced scale they do not reproduce the delicacy of workmanship and minuteness of detail of the original.

He has left accounts of many ascents, with illustrative outline views; but we shall only notice a few ascents made by him at an advanced age. In 1873, when seventy-six years of age, he climbed Ben Donich (2749 feet), at the head of Lochgoil, beginning at the level of the sea, in two hours and fifty-four minutes. In descending he fell head over heels down a steep slope, but escaped without serious in-

[1] See page 392.



BEN IM FROM GLEN KINGLASS.



BEN LOMOND FROM TARBET.

LOCHWOOD AND LOCHGOILHEAD.

jury. In 1875, when in his seventy-ninth year, he twice ascended Ben Voirlich, a climb of 2900 feet from the starting-point at Lochearn, without feeling much fatigued on the succeeding days. On one of these occasions he accomplished the ascent in two hours and forty minutes.

In the spring of 1877 he had a severe illness which nearly proved fatal, and resulted in a tedious swelling of the whole of one limb. After this there was a marked falling off in his pedestrian powers; yet in 1879 he was able to ascend Ben Vrackie, near Pitlochrie, a climb of 1700 feet from the road, with a preliminary mile of very rough moor to cross; and this at the age of eighty-two! And even in his eighty-fourth year he climbed an eminence 1200 feet in height, behind the house which he occupied in autumn at Ballachulish.

LOVE OF HIGHLAND SCENERY.

"To Mrs A. C. *25th October* 1857.

"We drove up Braemar, four miles higher than the Linn o' Dee, into a perfect wilderness, and had a fine view of the great precipices of Braeriach, two miles long, and called 1500 feet high—certainly, however, 1000. How provoking, after descending from this wilderness, and brooding over its solitary grandeur, to meet at the inn a fellow from Northern India, who at once popped the Himalayas in our face! On finding he had not been among these Braemar precipices, I told him what *we* had seen, and asked him if he had ever seen a precipice of 1500 feet in the Him-

alayas; but he could not say he had. There are lots there, however, far higher. No matter, I silenced him."

"To Mrs A. C. 20*th May* 1875.

"I have not the least doubt that you have good reason to boast of your Taj, its garden, and its moonlight. But can you step out of the Trossachs Hotel, as I did three weeks ago, at once into heather and short grass, surrounded with rocky heights, wild oaks in bud, and bright green birch in half leaf, while blackbirds, thrushes, and cuckoos make music in every tree? Can you tread upon carpets of young blaeberry-bushes in early shining green leaf and rosy flowers? Can you now pull in a four-oar on Loch Katrine, and now climb 1000 feet to the top of the precipitous Ben An, overlooking the whole lake, and opening up the Arrochar mountains, and Ben Lui, Ben More, and Stobinnain, still wrapped in huge fields and wreaths of snow? Can you in your boat encounter a gale on the Loch, land the frightened Mrs T——, and return home careering in triumph over the big waves? Can you secure the full enjoyment of all such good things for five continuous days of sunshine, a temperature of 60°, and no rain? No, you cannot, even where you have by this time fled for refuge from the roasting heat of Agra."

The following anecdote we have not found in any of Sir Robert's writings, but we have often heard him tell it. The incident must have occurred about the year 1850.

At one of his frequent visits to Professor Syme's residence, Millbank, he happened to mention an old school-day race in which one competitor carrying a companion of at least his own weight, ran fifty yards, against another who ran one hundred yards unencumbered—the result invariably being the success of the "horse." A challenge arose on the spot; and the party adjourning to the garden, Sir Robert took the part of the "horse," carrying Professor Balfour, the unencumbered competitor being Professor Maclagan. The ground was measured off, a dahlia pole stuck up as winning-post, and Syme acted as judge. He rather wickedly decided that he did not think the unencumbered competitor had gained a yard on the horse and rider. It was, however, a very narrow thing—"won by a neck."

CHAPTER XV.

FAMILY LETTERS, ACCIDENTS, FEVERS.

DOMESTIC—THE INDIAN MUTINY—CULTIVATION OF CHEERFULNESS—A TRIBUTE TO MORPHIA—SHERIFF JOHN CHRISTISON—HAPPY RELATIONS WITH CHILDREN—THE ESK ONCE A PURE STREAM FOR BATHERS—ACCIDENTS AND INJURIES—CONTINUED FEVERS—EPHEMERAL FEVERS.

In his domestic life our father showed that tender phase of his character which elsewhere he concealed. His example was enough for us: so perfectly correct was he in tone and conduct, that we could not fail to be influenced by him for good, and if we did not profit to the extent we might have done, the fault was our own. We held him in some awe, no doubt because of his reserved manner. But this was a mask behind which he concealed and held in restraint keen feelings and tender sensitiveness; and to these also was due a reserve of manner noticed in his professional visits. We knew that at all times he was ready to advise and assist; and his generosity was conspicuous. His grandchildren, who one by one came home from

India at some intervals of time, were a great delight to him, and to them he unbent more than to any one else.

The extracts and letters which follow go far to show the warmth of his nature, his love for his brothers, his solicitude for the welfare of his sons, and the happy terms he was on in his old age with the young children under his roof.

THE MUTINY IN INDIA.

"To Mrs A. C. *July* 19, 1857.

"I need not tell you with what mingled feelings of pleasure and grief, gratitude and regret, hopes and fears, I received on Monday last, the 13th, Alexander's letter from Rambagh, and yours from Gwalior. The letters were so interesting, and so much more important than many which had been made public,—in so far as they showed that the Gwalior Contingent were by no means to be depended on, notwithstanding what was generally said to me and others by all old Indians and Indians on leave,—as to lead me to think how they might be made useful; since it was probable that the Government, like every one here, had been taught to rely on your corps. I therefore instantly sent off a very short statement to one of our members most in contact with Government. But afterwards I thought it would be better to give them for publication to the 'Scotsman'; and you will see from the 'Scotsman' of yesterday, sent by this mail, you have become an authoress. When I tell you both letters have attracted much notice and re-

ceived much commendation, I hope you will neither of you regret what I have done."

"To A. C. *August* 25, 1857.

"It gives me great delight to find that you are not of the moping class, who look on Indian affairs with a disconsolate visage. Depend upon it that things will all go well ere long, and by-and-by better than ever, and that those who face present adversity with manfulness, will not only pass through it with less sorrow, and look back upon it with a more grateful retrospect, but are most likely to be looked to afterwards with favour."

"To Mrs A. C. *Sept.* 9, 1857.

"I entertain, but with all resignation, a strong reliance for continued mercy and support for you from Him who has hitherto vouchsafed to deliver you from great peril. One or two of our newspapers would fain have us prepare for even greater reverses and horrors than those which last mail brought us. But looking to the present aspect of affairs, and nourishing a firm reliance on the goodness of a gracious Providence, I persuade myself that we have heard the worst, save details; that some portion of the gigantic aid sent from this country and the colonies must be by this time in the heart of the mutineers' country; and especially that both Agra and Lucknow have been relieved long before now of the presence of the mutineers, and a measure of comfort restored to poor little May and you, as well as Alexander.

"My last thoughts on lying down at night, my first on awaking in the morning, are your miseries and dangers; and hourly they are brought before me in my busiest daytime occupations by the anxiety of your friends or my own inquiring about your welfare. My greatest distress is to hear of your destitution, and to be unable at once to relieve it. I am glad, however, that I took one step very early in anticipation of mischief," &c., &c. (arrangement for remittance of money).

"To Mrs A. C. *Oct.* 25, 1857.

"Whatever you can wait for until it can be sent from Edinburgh, please order without delay, and we shall have pleasure in despatching it by the earliest opportunity, my object being that you shall be reinstated in your former possessions whether the Company or Government grant compensation or not to their officers for their losses. My only regret now is that Alexander and you did not at once say what you would like sent out, and what you could get in India for your more immediate necessities. Instead of this, the only article which Alexander and you together ask for is a revolver! I ordered it in two hours after receiving the request. Now I wish you had given me fifty other commissions upon which I could also have exercised my restless impatience to relieve you."

CULTIVATION OF CHEERFULNESS.

"To Mrs A. C. 2*d July* 1860.

"It is sheer nonsense to get into low spirits, and quite wrong to look to the shady instead of the sunshiny side of the future. I was long ago prone to that error myself; but I was lucky enough to discover the mistake, and you have no idea how life improves under the opposite habit,—health, too, I should think, and longevity—nay, probably even wealth, conformably with one's greater vigour and determination. The real truth is, that this earth is a much snugger and more agreeable residence than a certain class of poets and moralists pretend—if one will only receive and use the gift as it was intended to be received and used. And low spirits, except for one's own wickedness at times, amount, so far as I can see clearly, to something like rebellion."

A TRIBUTE TO MORPHIA.

"To A. C. 15*th June* 1862.

"Do not imagine, however, that your uncle John's last days were spent thus in misery. Thanks to Providence, who has granted us in such circumstances the greatest of material balms, morphia never failed, even at his worst, to give him in the course of twenty minutes complete immunity from all suffering for twelve, eighteen, or even twenty-four hours."

HIS BROTHER JOHN.

"To A. C. 15*th June* 1862.

"Although by no means a very aged man (seventy-four), my brother John had outlived all his old intimate contemporaries. Most of them and the ablest of them had tried to combine incessant occupation as lawyers with high living, or something more; and that is a combination of sources of wear and tear which it requires a very hardy constitution to sustain. In this way he lost all his most attached Whig friends at the Bar, whose advancement, inevitable from their position and talents, would have been the forerunner of his; because his claims would have fallen to be weighed by men of a class with whom party partisanship would not have been the sole principle of action when in power. Failing these men, his abilities had no chance of favourable consideration from either party: for he was no Whig, although almost all his associates were; and the other party might with justice say he was no Tory, for he was too sensible of the want of common-sense, the imprudence, impolicy, and even injustice of the rulers of that political division of Edinburgh society at that time, to commit himself to their acts on certain testing public occasions. Hence he never attained that advancement which was his right, alike through seniority and qualification. For it now turns out that not a few members of the Bar had the same opinion which I have long indignantly entertained, that his legal knowledge, sound judgment, precision of statement, and high sense of honour, not less than varied col-

lateral acquirements, entitled him to many high professional positions, which have been filled up by younger and inferior men. It is vanity of vanities to refer to such matters now; but while I would never have altered my mind on the question of his usage, as it rested on long observation, and a judgment formed gradually from numberless opportunities, still it is gratifying to find that others and competent men have thought as I have thought."

Journal. "*August* 9, 1869.—Among other objects which turned up on Saturday in my paroxysm of putting things in order, one has interested and moved me greatly: this is a small packet of old letters, the only letters I found in my brother John's repositories after his death. Among them there are half-a-dozen of my own, very long, very particular, from Paris and London, while I was studying there in 1820-21. Why should he have kept so long these letters from and about me, and almost no others of his wide correspondence? — evidently, too, for frequent perusal, as they are well rubbed and tattered. An observation made casually by his widow a year or two before his death, supplies an explanation. After I graduated, he took great and active interest in my plans for advancement, being in fact almost my sole counsellor and principal aid. The more I think of those days, the more I recall his unselfish, often self-sacrificing, judicious, and efficient help. To him in particular, more than to all others put together, I owe the first step and crisis of my professional life—my appointment at the early age

of twenty-four to the Professorship of Medical Jurisprudence. He saw its vast importance to me, and his skill, energy, and perseverance carried successfully a complex and very prolonged canvass. Why did he venture to start me as a competitor—which he did while I was in Paris—at a time when I was twenty-three only? His widow's remark explains it. He had taken at an early time an intense interest in me, and felt a confidence in me such as is rarely met with between brother and brother: this interest and confidence increased with years, and it never was greater than as he expressed it to her in prospect of death.

"Have I repaid him? I trust I have done so in some degree. For my affection for him as a brother, and confidence in him as an adviser, and the esteem in which I held him as a man and as a lawyer, were always great, and increased with years. His knowledge of human character was profound, his accomplishments as a lawyer varied and high, and his judgment clear and accurate. But he had, unluckily for his chance of promotion at the Bar, the same contempt which I have always entertained for that political creed which sees only one side of measures and events, which feels only for those who belong to it, and which grudges every good thing on earth, however remote in nature from politics, to any other, however able, than a political brother. A professor and physician may thrive though independent of political party; and blessed be physic for the privilege! But as the astute Sheriff Currie said to me soon after John's death,—'At the Bar, if a man

expects advancement, he must choose a side, and both stick to it and fight for it. Your brother would not do so, and consequently he was stepped over by men of a different stamp, much his inferior in qualifications.' John himself knew all this as well as any man; but the knowledge did not alter his political creed or conduct. It is but a sorry account of human nature that there should not be a party with political principles similar to his large enough, at all events, to turn the balance for good in all dubious State questions."

The high opinion which Sir Robert has expressed of his brother John's talents and character was not due to mere fraternal partiality. Besides the characteristics which Sir Robert has mentioned, we may add that John Christison, like himself, had the rare endowment of having no fear of responsibility. Of this we may give one remarkable example. When he became Sheriff of Ayrshire, that county had been plagued for years by formidable riots between the Catholic Irish and the Orangemen on the 24th of July, and it was actually the custom for excursion trains and steamers to bring hosts of the low Glasgow Irish population to swell the number of the resident rioters. John Christison resolved to put an end to this, drew up a scheme for the purpose, and laid it before the higher authorities of the day, who, however, refused to give him any support. The Sheriff, nothing daunted, proceeded to carry out his scheme on his own responsibility. Being obliged to act solely

within his own county, he could not prevent the starting of trains or steamers from Glasgow, but he stationed part of an English Militia regiment, then quartered at Ayr, on the quay, with orders to prevent the excursionists from landing, and another body on the railway line to prevent the entry of the excursion trains into the county. He thus cut off the main supply of rioters, and by judicious police arrangements prevented the resident Irish from coming to blows.

Of course he never got any thanks from the Whig authorities for his bold action, but he had the satisfaction of knowing that there never was another Irish riot in the county during his tenure of the Sheriffship.

LETTERS ABOUT OR TO GRANDCHILDREN.

"To Mrs A. C. [in India]. 17*th June* 1863.

"As for penmanship, it is comical to see how your May [aged eight] holds her pen like all the Christisons, with the points of the fingers all nicely gathered up, in the very way which I still follow, and for which I used to get many a rap over the knuckles at school. I could scarcely contain my mirth last evening when I saw her writing to you, and she did not restrain hers when I told her that at the writing-school I always held the pen the same way, except when I caught with the tail of my eye the master approaching, when I instantly stretched out the fingers in writing-master's fashion, until his back was turned."

"To A. C. 2*d July* 1863.

"Our birthday [his granddaughter's] was not forgotten yesterday. We had some pudding at the late family-dinner, and just enough of a bottle of champagne to cheer but not inebriate. We think we have grown since being fitted with frocks in London, for they have required letting out and letting down in these few days. We seem to be quite fond of school, very anxious to be off in time for it, and full of incidents of learning on return home. Our head-mistress is fond of us, and expects great things of us; and the big girls are bent on making our acquaintance. But our mistress reports that we are shy of indiscriminate acquaintanceship, and have as yet only given our confidence to one little girl three years our senior. We are improving our penmanship, doing some English, and swallowing multiplication-table, which has been consumed as far as eight times twelve. We like nothing so well, however, as when uncle John or grandpapa teaches our forefinger to play 'Rousseau's Dream' or some such easy performance on the piano. Rousseau was grandpapa's lesson, and we got at it very cleverly, and can now play it almost as well as he does,—which is no great thing. Our little fingers don't get over the notes very well; but our taste is clearly good in music, our ear for time correct, and our other ear as exact for tune. We are writing a letter to our mamma at one side of a diminutive table, while grandpapa is writing his at the other side on a thin book which he holds before his nose; and we have sometimes to ask him how to spell a word;

but he always makes us try first, and very generally finds we are right. We had not the least idea, however, how to spell David."

"To A. C. 17*th June* 1864.

"Her uncle John and May have become inseparable: he is now the authority appealed to, the shield for defence, the victim to tease, and the tutor to instruct. But as he has to go every evening to shoot for prizes, and May and I are left alone in the house, my position is unusually important this week. She gets what aid I can give in Scripture geography, which is not much; and in French, in which I am more serviceable: and in return she plays me 'See the Conquering Hero comes,' and 'A Grandmother's Song' from the German, very well indeed."

"To A. C. 1*st Dec.* 1867.

"Harriette [aged seven] is growing visibly in longitude, and is getting well filled up. But she has had a loud barking dry cough, not affecting either strength and restlessness, or mirth and vivacity. She is quite proud of her rank as school-girl, and goes readily at eleven to her multiplication-table and word-book at No. 42, and eagerly to 'Spanish exercise' and dancing in the evenings of Mondays and Thursdays. Her tongue goes incessantly, and needs frequent snubbing on that account merely. Any one, young or old, who talks so constantly, must talk much nonsense, but she contrives to put in an unusual proportion of sound sense too. This morning,

for example, she asked me at breakfast to show her how the earth moved—which I did with the help of a great round bread-loaf. But she nonplussed my powers of explanation by at once asking me how that could be, when 'our heads would be all "heads over heels" sometimes.'"

"To EDITH [aged seven] in India. EDINBURGH, 25*th Feb.* 1875.

"DEAR EDITH,—That was a nice wee bit from your pen, which I got from you ten days since. If you take as long to tell me that you have got this, as you took the last time I wrote to you, you will be an old girl, and show a great deal more skill at the work; and in no long time you will be as good at it as your mamma, or papa, or May, or any of us.

"Tell that wild boy Bob that we did not fail to drink his health on his birthday in a glass of rare good wine called Scharzhoffberg. That is a tough word, is it not?—hard to read, and worse to speak. But try it, and you will learn it at last; and the first day you are here, you shall ask for that wine, and we shall each of us drink the healths of all the rest of us in a full glass of it. For it is good, and quite the thing for such a toast. Dear me, when will that be? Why, to be sure there are but * * * * * * * * * * * * * * months till then, or one month more at the most. What a day that will be when you all turn up here! You will be a shy puss. Bob will rush from room to room till he finds some new thing to play with. May will be struck dumb for a while. H. will be like to leap out of her skin for joy, and to crush Bob and

you to jam for love. And we old folk at home, as well as your P. and M., will be glad-glad, though we may not show it so much as you young folk will.

"In the meantime, I want you to write to me what you would like me to send you as a gift for your next birthday. It must be something which will neither break nor spoil on the long way from this to you.

"Tell May that this house still seems not what it was, and as if not our own old house, now that there is no girl's voice to be heard in it, except when once a-week H. dines with us; and on those days you may be sure there *is* girl's tongue, and lots of it. I dare-say May would by no means like to think that I do not miss her. You may tell her that,—yes, I do miss her more times than I can count. You must know that, since I had my bad cold at the end of last year, which kept me four days in bed, and six more in the house, I now and then come home quite done up with the work of the day, and not fond at all of more. I do not in that case care much to read a book, as my eyes feel weak. I write with more ease, but it would be dull work to write on till bed-time. But quite the thing to suit me in that state would be that I should loll on an arm-chair and hear a tune played or a fine song sung. For want of that, I sit in such a chair, and think—and soon I go to sleep; which is not right—a sheer waste of time, and apt to break one's rest at night too.

"What a gay life May must have led since she joined you! And you too! I fear she has led you to be too much of a gay girl, and that you will in no

long time be knocked up like me, but not from the same cause. The best cure in that case for both her and you will be that you start soon for the hills. You will be all safe and sound there.

"Your papa writes that he sent me two years since some salt from the Salt Lake, which he saw a few weeks back. I do not think he sent it. That is to say, I did not get it. At least I cannot bring to mind that I got such a thing from him, or that I now have it. But if he could still get some of that salt, I should like much to add it to the sorts I have now. It seems to form in an odd way—such as I had not heard of till he wrote of it. When I try to think whence may come the salt which salts that lake, I am at a loss what to say. What do you say? Do you think it may come from mines of salt in the hills, through which streams run at the time of the rains?

"I trust your mamma has now got quit of her colds and pains in the head. It is a shame for her to take cold in such fine air as that which she now breathes. If she were here, I could not blame her: for we have had for three months past, at one time great frosts; then a day or two quite mild and warm; next, blasts of snow and sleet; then warmth and sun come back; by-and-by more and worse frost, with strong north winds; thick chill mists, too, for more change,—in short, all kinds of blasts and airs bad for those who have not strong throats and strong lungs, and a quick smart pace in the street to keep them warm. This day we have a fierce storm of thick snow, with a strong north wind, which swirls up the snow-flakes as high as the

house in a grand way, and makes the air quite dark, and has blown down some boys and girls in the street—one of them through a pane of glass in a shop. But you have not yet seen a snowstorm, so that you cannot so much as dream of such a thing; and so I should not speak of it. But I can tell you that those who had to fight it in the face, as I had to do this morn for a good mile from the west end to the east end of Princes Street, know full well what a north-east snowstorm is. From what I now tell, you can see how it is that all one's friends must be laid up with colds of some kind, or, if we meet them in the street, that they cough, or sneeze, and have a red nose, and a drop at the point of it, or a tear in their eyes, or cracks in their lips and cheeks too.

"Now this sort of air would not suit poor mamma at all. But how she should go wrong, and catch bad colds in the balm, the sky, and the breeze of the clime where she now lives, is what no man can tell—at least not your loving and puzzled grand-parent."

Sir Robert had his share of accidents, injuries, and illnesses; and as they were of a somewhat remarkable kind, we give the following account of them. Probably the first of his misadventures was when, quite a little boy, he was swinging over an area, holding the railings with his hands behind him. A passer-by loosened the hands, and he fell headlong on to the stones below. He was picked up insensible, and carried home to his mother in the arms of an elderly female

Samaritan. He remained insensible for some hours, but was ultimately none the worse, as his subsequent life has proved.

Sir Robert used to amuse us as boys by telling how, when he was a boy and had one day been called with others into the dining-room after dinner at Dr Ritchie's, he rushed out for the backgreen followed by his companions, and went swish through the wine-glasses on a tray that had been laid by the servants at the head of the kitchen-stairs: he got off with nothing worse than a gash on his ankle.

A third accident of his boyhood is thus recorded by himself:—

"14*th September* 1867.—The occupants of Inverury" (where Sir Robert had been seeing a patient) "for the present are the widow and daughter of Oliphant of Condie, who, when a boy of twelve and a boarder in my father's house, and when I was a small boy of six or seven, fixed himself in my memory thus: In what was then a large sequestered park in the Pleasance, now densely covered with hulking clumsy houses, I was sent to a post of safety behind a whale-jaw on the brow of a rapid descent of the park towards Dumbiedykes Road, to observe where Oliphant's arrow might go. Getting impatient at his delay, I peeped round the jaw to see what he was about, and at the moment the arrow cut a bit out of the left angle of my mouth. The bleeding was great; the terror greater—and the shooter was quite as much frightened as the shot. I do not think I ever saw him afterwards."

In his youth he was bathing with friends one day in the Esk near Roslin Castle, and was seen to dive to the bottom of a pool and remain there. His companions thought at first that he was trying how long he could stay under water; but one of them, his cousin John Christison, afterwards minister of Biggar, at last got alarmed, and although no swimmer, being very tall, managed to wade in up to his chin and to give the diver a push with his toe. The impact roused him, and brought him to the surface with a great gasp. It turned out he had been stunned by striking the ground, and he must certainly have been drowned but for his friends taking the alarm. The Esk—at that time a pure stream—is now sadly polluted by the manufacturers on its banks, and there is no fear of any one diving into its pools for pleasure in these days.

When Sir Robert, then a young Professor of Clinical Medicine, was proceeding one very stormy Sunday to twelve o'clock duty at the Royal Infirmary, he was completely carried away in Princes Street by the force of the wind, so much so that a friend who was holding on to the railings on the garden side of the street told him afterwards that at every step he rose above the level of the stones (about three feet high) which in those days supported the lamp-posts. He found himself going faster and faster, and his knees becoming less and less able to bear the strain. Thus as he was rapidly reaching a point when he must certainly have been dashed helplessly to the ground, he decided to stop himself with his extended arm against a lamp-post, and was thrown down and rolled into

the gutter. Recovering from the first shock, and wondering that no one came to his assistance, he raised his head, and found that there was a good reason. He was far past the friend referred to above; and so great was the fury of the wind, that no one ventured to fight against it, and the street was literally empty. At last some one who had seen the accident from a window came to his aid. The result of the fall was a severe injury to one knee, which laid him up for some weeks.

In 1855 he had to submit to the removal of a painful neuroma from the front of the left thumb; and while the wound was in course of healing, and the hand could be of no service to him, he had a fall from a carriage at Arddarroch, on Loch Long, which he thus describes:—

"Mr Syme, who saw me launched head-foremost on to the road on the points of my extended fingers of the right hand, when the iron tackets on the heel of my fishing-shoes caught on the edge of the iron step of the carriage, says I should be thankful it was not my neck. Mr Syme, after he had relieved my torture by hot water on board the steamer, also said that I had reason to be thankful I was not a surgeon; *but I have always been thankful for that.*"

This accident caused a severe sprain of two fingers of the right hand, between which and the recent operation on the other he was left very helpless for some time. Yet he managed to do a great deal of work, and even to make some use of his hands.

Besides the neuroma above referred to, he had one

on a nerve of the upper arm, which often gave him great pain. His treatment for this was strange but effectual—viz., to seize the ring of an iron 14 lb. weight, and swing the weight round his head for some minutes. This method he followed till late in life, and it invariably gave relief for a time. Perhaps some other sufferer from this evil may take a hint, and find similar relief from a remedy which neither he nor his doctor is likely to think of at first hand.

In the following letter, of 19th July 1857, to Mrs A. Christison, Sir Robert describes a carriage accident to himself near Brechin, when he appears to have saved himself from serious injury by his coolness and presence of mind in the face of danger:—

"Seventeen days ago I had to cross country eight miles in an open carriage near Brechin, to meet two doctor friends at the patient's house. When scarce two miles from it, the horse, a mettlesome semi-blood, given to shying, suddenly shied up a green bank on its off side, and instantly over went horse, and driver, and drosky, and doctor into the road, the drosky not merely over, but turned upside down. Instantaneous as was the incident, I had time to feel quite confident, to watch as the carriage, in going over, reached the middle stage when the floor was vertical and I horizontal, and then to shoot myself out horizontally with the right foot; and thus I fell on my side, a great way clear of the carriage, and without any material blow, on the ground. I got a good shake, and a hard knock on some projecting stone just below the left hip-joint, which I still feel

when stepping up a stair, or lying on the left side in bed. There was no other injury, not even the grazing of unprotected superfine broadcloth, or the slightest mark on my second-best hat. If an acrobat had designed the whole achievement, it could not have been more perfect. The road was hard and dusty, and I was most famously peppered from top to toe. But out came a farmer's wife and seven grown-up daughters from a farmhouse at the top of the bank, and they, with much kindness and equal earnestness, brushed me as quickly as it was reasonable to expect when eight pairs of hands were about the job."

One of the most risky of his accidents happened when he was seventy-six years old, and is thus described in his journal of 20th August 1873 :—

"I crossed Loch Goil with a party, and ascended Ben Donich, a height of 2750 feet. In descending, and near the bottom, my trusty six-feet stick betrayed me, while twisting round a rock, by sinking through a treacherous turf, and I went head over heels down the slope, and struck my right shin violently upon a large stone. The pain paralysed the leg for some minutes, and a long slice of skin-surface was abraded. But in a short time I was able to proceed home without uneasiness. I took much exercise for more than a week subsequently. Indications of periostitis, however, then set in, and I was obliged to treat myself as a lame man for a time."

But the most dangerous of all his accidents, considering its own nature and that it happened in his

eighty-third year, occurred at Balmacneil, in Strath Tay, after his recovery from the severe illness which led to his retirement from his professorship. It is thus described by one of us in a letter in August 1879 :—

"Father had a most extraordinary escape on Thursday last. He was helping cousin Tom to cut a rose-stick in a gully near the house. He was cutting off the thin branches round it, when some of them unexpectedly broke away, and he fell down the gully backwards, and must have gone head over heels two or three times. Tom says father was beside him one moment, and when, startled by the noise of his fall, he raised his head, he saw him, the next moment, sitting at the bottom, some 30 feet down the slope. He escaped with a stiff neck and shoulder for one day! There was not even a shock of any kind. It is no use trying to keep him out of such risks: perhaps we should rather be glad that he has the vigour of mind, and sufficient remains of bodily activity, to come in the way of running such risks, and is not, what most men are at eighty-two, a done worn old man, absolutely unfit to run the chance of similar accidents."

Sir Robert had a fair share of illnesses, mostly in the shape of fevers. As a medical student and young physician he was much exposed to the infection of fever. The risk from this cause in those days was very great, as there were not only several great epidemics, but fever constantly haunted the lower districts of the town, and no medical man could expect

to escape the common fate if he attended the fever hospital or was engaged in dispensary practice. In the early part of his career he had six attacks, five of relapsing fever and one of typhus, the last two being in 1832 and 1843. When past middle life, in 1861, he had another attack, which is described in a letter further on. Lastly, he had a very serious illness in 1877, which also is described further on.

Besides these he had frequent attacks of ephemeral fever. He appears to have been subject to these for many years of his life, but he has left no record of them till 1863. After that date twelve ephemeral fevers are mentioned or described in his correspondence, but he may very likely have had others during this period. Although these attacks were not of a serious nature in themselves, as they were usually followed by eight or ten days of languor and disinclination for mental or bodily exertion they often caused serious inconvenience and loss of valuable time.

Some apology is perhaps due for saying so much about these fevers; but we believe that Sir Robert's liability to fever was so remarkable as to render the details of interest at least to medical readers. It will interest them also to know that even when very ill he closely observed his own symptoms, and even regulated his medical treatment and diet. To all readers it must appear remarkable that no permanent injury to his constitution or general health resulted from these numerous fevers.

We conclude this chapter with a few notes of his feverish attacks, chiefly made by himself.

"To A. C. 16*th June* 1861.

"I have had something like the relapsing fever of my youth. When in great health and spirits I was attacked by a five days' fever, and when far advanced in convalescence had a relapse on the eighteenth day from the commencement, lasting for two days, and imperfectly for part of a third. There was never any great excitement of the pulse as in my fevers of old, but the nervous exhaustion was almost as bad."

March 22, 1863.—After the fatigues and exposure, as a volunteer officer, at the review in honour of the royal marriage, he had a febricula on the following day and another the day after that; and in November of that year he was much hindered in preparing his address for the Social Science Association by another attack.

"*March* 19, 1868.—On Monday last, the 16th, I was particularly strong and lively, when during the night I was surprised by the advent of a slight ephemera. In the morning, finding I made a good meal, I went to my class and got on very well indeed. Returning home I felt I had done enough, but had to see a lady in the country. Our consultation room was an airy bedroom without even a fireplace. The consequence was horrid *groozing* with goose-skin, enduring for two hours: my own nice fire brought on a jolly hot stage of prostrate uselessness; and next night was spent in protracted gentle perspiration, which left me easy but too prostrate for any exertion

next morning. All the while I had no headache, no local uneasiness, no sickness, a fairish appetite, and sound digestion. Surely here is a pure primary fever without local cause, without local mischief. Whence this incomprehensible return of mine ancient enemy? seeing how well and vigorous I felt for some days previously, and that no exciting cause is patent to my pertinacious and unsparing scrutiny."

"*April* 10, 1868.—Three weeks after my ephemera of 16th March, I came in for a second attack, which kept me in thraldom for thirty-six hours. I have had no hard work to cause this attack, no mental annoyance—in short, I cannot discover a cause on this occasion any more than the last."

In 1870 he mentions another in a letter to Dr Paget.

In 1872 he had two attacks of this fever.

"*May* 9, 1873.—I was only five days in London when I was seized with inflammation of the left ear—my best—and in two days this drove me home miserable with deafness, unharmonious sounds outside and inside, and a sense of general smash. I am still very deaf in the affected ear—nor was the other ever a very good one. '*Pour comble de malheurs*,' I fell fourteen days ago into an attack of my enemy, ephemeral fever," &c.

"*August* 1874, *St Fillans*.—When in full vigour I was attacked with an ephemera, slight, but followed by great oppression of limbs and mental faculties, and lasting about a fortnight, when I aroused myself to take a long walk of eight miles, and next day climbed the Birren."

"1875.—I had two days' ephemera in August, and took ten days to recover vigour."

"*August* 1880.—I was attacked on the 1st, without discoverable cause, by my frequent enemy, ephemeral fever. In consequence I was unable—for the second time only since 1822 — to attend the ceremony of medical graduation."

"*September* 20, 1881, *Ballachulish.* — I had an unusually sharp attack of ephemeral fever, the stages of which lasted for thirty-six hours, and which pulled me down sadly, while I was gaining strength (in a general way)."

CHAPTER XVI.

HONOURS.

CROWN REPRESENTATIVE IN MEDICAL COUNCIL—D.C.L. OXON.—PRESIDENT OF ROYAL SOCIETY OF EDINBURGH—INVITATION TO BE RECTOR — UNIVERSITY BUST — BARONETCY — LL.D. EDIN. — A SHOWER OF HONOURS—LL.D. CAMB. AND PRESIDENCY OF BRITISH ASSOCIATION OFFERED — ASSOCIATE OF FRENCH ACADEMY OF MEDICINE—LIST OF OFFICES AND HONOURS.

THE number of honorary appointments, and honorary memberships of British and Foreign medical or scientific societies, conferred on Sir Robert, was very great. We have endeavoured to give a complete list of them at the end of this chapter, but very likely we may not have hit upon them all.

Some of these British appointments might be classed rather under the head of duties than of honours, as they involved no small amount of work, such as his membership of the General Medical Council; but on the whole it is preferable to place them here. We have collected all the remarks made by himself about these honours, and have added a few of our own upon such as he has not noticed. As it was a

rule of his life to undertake no duty which he did not feel quite confident of fulfilling, as "he could do nothing by halves," he declined some honorary appointments involving responsibilities, which were offered to him in the latter years of his life, at times when he felt uncertain as to his health and strength being sufficient for the duties required. He thus lost the honour of being President of the British Association. He had also to decline the degree of LL.D. of Cambridge, as he felt unequal to the fatigue of travelling at the time when it was offered to him.

*

CROWN REPRESENTATIVE FOR SCOTLAND IN THE GENERAL MEDICAL COUNCIL.

"To A. C. 14*th November* 1858.

"For a long time I looked upon myself, and most people regarded me, as member of the General Medical Council for Edinburgh and Aberdeen Universities. But as the time for decision drew nigh, the office became first a matter of indifference, and then of repugnance, to me. At last I had almost made up my mind to decline the post, and was only deterred from declaring such to be my intention by finding all my friends expressing their confidence in my going to London as Member of Council, and their conviction that my presence was necessary. While in this state of indecision I found, to my surprise, in conversation with Mr Syme, that he was both willing to make the necessary pecuniary sacrifice, and desirous even of being our University member. This, I told him, was a great relief to me; and after

explaining why it was so, I resolved to put an end to all theories about myself being the member, by agreeing to propose him; and in this I had the concurrence of both the Aberdeen Colleges. Syme, considering my presence also as Councillor absolutely desirable, wished me to get application made to the Crown for the Scottish Councillorship in its nomination. This I peremptorily refused to do, or to allow any one to do for me; but at the same time I felt and stated that Syme's support in the Council would remove much of my objection to going into it.

"On the 20th September there was written by Walpole, the Home Secretary, a letter to me, offering the office, and in such handsome terms as put a refusal out of the question. It seems I owe my being Councillor to some hole-and-corner attempt to keep me altogether out of the eye of the Secretary of State. For our Lord Advocate told your uncle John that Walpole sent him from London a list of Scotch medical men for his advice in selecting the Crown representative for Scotland, and that his lordship returned for answer that it was with extreme astonishment he saw several names on the list made up for the Secretary's consideration, but that it was with still greater astonishment that he did not find there the name of Dr Christison, whom he would otherwise have indicated as the person best qualified for the office, and most certain to carry with him the confidence of the medical profession and the public in Scotland. Thereupon straightway came Secretary Walpole's Balmoral missive.

"And thus I have the quiet satisfaction of reflecting that, while many have been coveting the post of Councillor with all ardour, and stirring every means for obtaining it, I have the singular comfort of not having desired it, and, like Malvolio, of having honour thrust upon me. But I must take care not to follow that peacock of a gentleman in my treatment of so much good fortune."

"To Mrs A. C. 1*st August* 1859.

"I am going to London to-morrow, some say for ten, some for fifteen days, but I say for five days, to a meeting of our 'Medical Parliament,' the General Medical Council. It is a most trying way to wind up the summer, but there is no help for it. We shall have long sittings, no sufficient continuity of time to see sights, or do anything unbusiness-like, except to dine out, and that is dull work when it exceeds three days a-week. Much fighting is anticipated; but I look for better things. I am, I admit, a determined enemy, and much given to pugnacity in Council; but latterly I have seen that this tendency has been the result of imperiousness when small men stand in my way, trying to make their frog swell into a bull. And so, on getting among the other people of the Council, I become a very lamb in disposition, because I am one of many who have great mutual regard, and who listen and yield to one another like wise men and well-bred gentlemen, and do not roar, and bully, and insult like certain big-little men here who shall be nameless."

"To D. C. 10*th January* 1864.

"Suddenly a number of members find out that a residence in London is not an essential qualification for the office of President of the General Medical Council, and they jump to the conclusion that the President should be Dr Christison. London replies that if Dr Christison will shift his quarters and live in London, he shall be President with the consent of London; but says, and says truly, that if a resident London President is not an essentiality, he is at all events so great a convenience that without him there would be many a hitch in business. As for Dr Christison, he had no idea he stood so well with so many men of note as have expressed their concurrence in his nomination. Like other posts of honour and responsibility that have recently come in his way, he will accept this one cheerfully, provided it can be shown that an Edinburgh man can do the duty. He will both express and feel the greatness of the honour."

This measure it was found impossible to carry out, as the inconvenience of having a President so far from London would have been too great.

D.C.L. OF OXFORD.

"To A. C. 2*d July* 1865.

"The week before last I for the first time visited Oxford to receive the degree of D.C.L. I had three entire days to do and to see everything—and days of great enjoyment they were. On Tuesday I saw

almost all of the glorious old colleges, examined carefully an excellent museum erected lately on a large scale, and dined with the Vice-Chancellor; the same evening heard a capital concert at Exeter College Hall by the students; but did not afterwards go to a great ball, as by that time I had been forty-two hours, including my railway journey, on foot or seat. On Wednesday morning I underwent the whole Commemoration ceremony; lunched in the hall of Exeter College; lounged at a grand *fête-champêtre* in New College Gardens in a scarlet cloth gown, at a temperature of 84°; then, after visiting more colleges, spent a quiet evening with my host, Dr Acland, in his garden. Next day I saw more colleges, and went on the river in one of the cockle-boats so loved by all Oxonians. This interlude in my life would now seem a dream, were it not for the vivid recollection of sundry scenes which I can never forget. Among these the college quadrangles, some of which are perfectly beautiful, perhaps produced the strongest impression on me. Another scene of a very different kind was the Commemoration. The saturnalia, so often described, went on for a whole hour; but I must candidly confess I greatly enjoyed it. It is difficult to give you an idea of the perpetual but good-natured clamour and fun; but I shall attempt an instance. An essayist upon Instinct, after detailing various functions and qualities of Instinct, unluckily propounded his next head of inquiry in the shape of a query, thus: 'There now arises the question, Is it susceptible of modification?' A strong voice oppo-

site instantaneously called out, 'No.' As instantly there arose the reply, 'Yes, it is so.' 'No.' 'Yes.' 'No.' 'No.' 'Yes.' 'No-o-o-o-o-o-o.' 'The Noes have it;' and as the outcry was dying off, the original voice called out, 'Now, mind you that, sir.'"

In 1868 and the few following years, a perfect shower of honours fell on Sir Robert. We shall leave him to describe his own thoughts and feelings on these occasions, where he has expressed them. But as he has left no account of the presentation of his bust to the University in 1871, we supply a few particulars from the newspaper reports of the ceremony, and from other sources.

PRESIDENCY OF THE ROYAL SOCIETY OF EDINBURGH, AND OTHER HONOURS.

Journal. "*November* 7, 1868.—This afternoon Dr Balfour intimates that the Edinburgh Royal Society Council unanimously resolved to propose me to the Society for the office of President. It is the highest honour which the men of science in Scotland have to bestow.

"I got a still greater surprise this evening, when a deputation of students called to represent that the *cives* of the University are still at sixes and sevens about their choice of a Rector; but that when it was proposed to turn adrift all the men hitherto spoken of and appoint me, the consent was so general that the deputation are satisfied they should carry me by a large majority. I was sorry to disappoint them,

though far from sorry on my own account, by informing them that, according to our constitution under the Universities Act, no professor can ever be Rector.

"*November* 10.—My surprise was still greater when Dr Maclagan called only a day or two afterwards to intimate that a number of my friends had met and resolved to have my bust taken for the University by Brodie."

There were 221 subscribers to the marble bust, all of whose names are entered on a parchment now in our possession; and the result was, that the subscribers were able not only to attain their object in placing the bust in the University, but were in a position also to present an excellent replica to the family. The bust in the University is the only one of a professor admitted during the life of the original.

At the presentation of the bust to the University, Principal Sir Alexander Grant, as chairman of the committee, stated that in getting up the subscription there was no thought of any general public testimonial to Dr Christison, and that what had been done was only by a few of his friends for a special object. These friends included almost the entire body of the Senatus and University Court, and all the leading members of the General Medical Council of Great Britain. In concluding his remarks, the Principal paid the following eloquent tribute to the friend whose character he admired so much, and whose advice in University affairs he valued so highly:—

"We ask for the admission of Dr Christison's bust during

his lifetime into this hall. We have already admitted the bust of his Royal Highness the Duke of Edinburgh. We have admitted it to testify our feeling of loyalty towards the present reigning family; and we now wish to introduce among the worthies who have passed away, and whose effigies are around us, the bust of Dr Christison—and I may say that our reason for wishing this is that he is Dr Christison. When that bust is placed here, it may happen that after many years have passed by, some one passing down the silent rows of these busts may, if he is well acquainted with the history of the University, arrest himself before the bust of Dr Christison, and may say or think to himself,—

> "'This was the noblest Roman of them all.
> His life was gentle, and the elements
> So mixed in him, that nature might stand up
> And say to all the world, "This was a man."'"

We now come to the crowning honour of Sir Robert's life—the baronetcy; a great honour in itself, but which he valued mainly because it came entirely unsolicited, and was offered in a peculiarly gracious manner by the Prime Minister in person.

BARONETCY.

Journal. "*October* 10, 1871.—The Prime Minister, on his way south from Balmoral, called on me this evening, and informed me in the kindest and most gracious manner, that if it was agreeable to me he would recommend her Majesty to confer upon me a baronetcy, as a compliment to myself, to the medical profession in Scotland, and to the University of Edinburgh.

"The announcement was quite unforeseen. I had no idea whatever who could have suggested it to him,

and his whole conversation and bearing gave me the impression that the offer had originated with himself. I was therefore much overcome, more perhaps by his exceeding kindliness than by the high value of the gift placed within my reach; but rousing myself to a level with the occasion, I received his communication in a spirit which evidently met with his approval. I declined the honour on the single score of my fortune not being sufficient to endow a baronetcy duly, and explained at some length my position as regards my fortune and family. Mr Gladstone expressed his thorough appreciation of my views, and sympathy with them—adding the reflection that he had often occasion to remark the sound thinking of members of the medical profession. But he begged me to take a few days for consideration, and write the result to him in London.

"*October* 11.—On reflection, in addition to the reason already given, I feel that honours have lately been offered to me more than enough to satisfy any one who coveted them much more than I do, and that I already possess every happiness, and every means of its probable endurance, which a reasonable man of the age of seventy-four could expect.

"I propose, however, to refer the question to Dr John Brown—a sound judge, and who has the happiness of my family as much at heart as any other male friend of it—and to abide by his opinion.

"*October* 14.—A pressure of country visits prevented me from seeing John Brown till to-day: he is very strong on the side of acceptance, and assigned

sundry strong reasons in favour of it. The chief of these were, that the honour as designed by Mr Gladstone was not purely personal, but also intended for the Scottish medical profession and the University; and that, as to my objection of insufficient means to endow the title for my successors, a baronet in these days might without disparagement engage in a profession, or even in commerce.

"*October* 15.—Therefore I have this day written to Mr Gladstone, gratefully accepting the honour."

The 23d of February 1872 was certainly one of the most memorable days in Sir Robert's career. He then completed the fiftieth year of his professorial life, and was still as competent for its duties as ever. In honour of the event, and to show the admiration and affection felt for him in his native city, and by his brethren of the medical profession generally, a banquet was held, which was attended by the most eminent citizens of all professions, and by not a few old pupils and admirers from a distance, and was presided over by Justice-General Inglis, Chancellor of the University. A deputation from the London Club of Edinburgh graduates came down to present a congratulatory address to Sir Robert and to attend the banquet; and the University Volunteer Company took advantage of the occasion to present their veteran captain, on the forenoon of the same day, with a sword of honour.

In this same year he was made LL.D. of Edinburgh University—a rare exception to the custom which for-

bids the granting of an honorary degree to a Professor by the University to which he is attached.

A SHOWER OF HONOURS ON COMPLETING FIFTY YEARS OF PROFESSORIAL DUTY.

"To Mrs A. C. 21*st March* 1872.

"The incidents of the 23d February were sufficient to give any rational being a surfeit of compliments, or to work out his ruin by pandering to his self-esteem.

"When you wrote, I scarcely think you could have been aware of all that was designed for me, in addition to the great dinner on that 23d, or of the unlucky preparation for it to which I had been subjected previously. About four weeks before, I had a smart attack of ephemeral fever, and—a most unusual circumstance—it returned upon me four days after the first attack with redoubled force, and for two entire days; and, as the weather became most ungenial, my convalescence went on very slowly, as it always has done when accompanied with a necessity for much head-work, and an impossibility to get open-air exercise. Accordingly, I felt great doubts of my fitness to endure the fatigues and excitements of the 23d; but I was nevertheless determined to encounter them, which was done as follows:—

"First, I walked over to my lecture at nine, as usual; then drove home at eleven to meet Dr Acland on his arrival as my guest, and to put on my Volunteer uniform; next drove back to College at twelve, to be received by a great crowd of students, many

extraneous gentlemen and ladies, and a full turn-out of the University Volunteer Company, to receive from them a grand silver-mounted sword of honour for my invaluable services as their commanding officer; then hurried home to change dress again, and hurried back to College a third time, to receive in the Library Hall a deputation of three of our graduates from London to present a splendidly illuminated address in name of the Edinburgh University Club in the metropolis, which illuminated address I have undertaken that Alexander and his successors shall preserve as an heirloom; in the next place repaired to a meeting of the University Court at three, which sat till five; after that home again, and changed dress for the fourth time for the great dinner at half-past six; and finally sat or stood, and spoke or listened, till exactly two A.M. of the 24th, when I walked off with the Justice-General and what else remained of the company.

"There! is not that a sentence to take away your breath? Nevertheless the successive incidents which it chronicles acted like a tonic on me; and though I awoke at eight next morning with a shocking headache, and all the sensations of having been guilty of a debauch the night before—viz., on one glass of hock and half a glass of brandy in seven hours—I was well and alert after dressing.

"I am wearying to see a photo of Edith and of Robert, whose birthday I did not forget or omit in my speech."

The last reference is to his only grandson, Robert Alexander, who was two years old on that very day,

and the words used in the speech at the dinner were: "The honour shall never be forgotten in my family—an heirloom which will descend to my successors, and will rank with them as one of the highest. In reference to this allusion, permit me to mention another rather singular instance of good-luck. This 23d of February happens to be also the birthday of one who, if he lives, is destined to be my successor one day in the honour which has been conferred upon me. My eldest son is a medical officer in the Indian service, and his only son is a little boy who this day is two years old."

The next two or three extracts show that at last age was beginning to tell upon Sir Robert, and obliged him to decline further honours and responsibilities.

OFFER OF PRESIDENCY OF THE BRITISH ASSOCIATION.

"To Dr Beddoe, Clifton. 21*st August* 1875.

"As Dr Hooker [Sir Joseph] was the member of Council who first broke to me their wishes in this matter, I wish you would take his friendly counsel, in which I need not say I have full reliance, and joining thereto your own, as one well acquainted by actual observation last year with the overpowering helplessness occasioned by these attacks (of ephemeral fever), as well as with the doggedness of the animal in throwing them off, and get the Council to consider whether it is not better for all parties that they should nominate for their next President some younger commander than an obstinate old sinner

who cannot forget his youth,—though, when the occasion arrives next year, he will be two months gone in his eightieth year, D.V."

"To A. C. 23*d December* 1875.

"Instructed by my attack at the end of August last, and the recollection of previous unaccountable ephemeras at the same season, I apprised the Council of the British Association of the risk of my being incapacitated without even a day's warning; and by common consent I am not to be their President next year at the Glasgow meeting."

OFFER OF THE DEGREE OF LL.D. CAMBRIDGE.—INVITATION TO STAND AS LORD RECTOR, EDINBURGH.

"To A. C. 27*th May* 1880.

"On arrival at home from Dalmally, I was almost upset by the intelligence I encountered on the lobby table.

"1. The Cambridge Vice-Chancellor's invitation to go there to the British Medical Association Meeting to be made LL.D. of that famous University.

"2. That the students had finally resolved to put me up for Rector next November, against the new Home Secretary, Sir William Harcourt.

"The Cambridge invitation I declined, because of too much row and travel for my frail senility. The Rectorship candidature I hesitatingly accepted. I am undertaking too much, I fear, and seem to myself to be presuming too much upon the future. But you know, '*Tout est aux mieux dans ce meilleur des mondes possibles.*'"

ASSOCIATE OF THE FRENCH ACADEMY OF MEDICINE.

In 1875, Sir Robert was elected a Foreign Associate of the French Academy of Medicine—one of the greatest foreign honours that can be conferred on a man of science in this country. The intimation of his election from the Secretary, Dr Henri Roger, is so heartily expressed, that we make no apology for inserting it here :—

"PARIS, *le* 26 *octobre* 1875.

"MONSIEUR ET TRÈS ILLUSTRE CONFRÈRE,—Quand vous avez eu la bonté de venir au devant de moi au moment où j'entrais dans le magnifique jardin botanique d'Edimbourg (au dernier *meeting* de la *British Association*), je vous ai dit que le premier Correspondant de l'Académie de Médecine présenté pour la place d'Associé (vous savez que c'est le titre le plus élevé dont nous pouissions disposer pour les Savans Étrangers) serait M. le Professeur Christison.

"La Commission Académique, dont je fait partie, a présenté dans la dernière séance, sur ma proposition et sur celle du Rapporteur M. Giraldès—

"En 1re ligne: M. Christison.

"En 2e ligne, *ex æquo* et par ordre alphabétique, MM. Donders, Pirougoff, et Tyndall.

"La nomination se fera dans la séance de Mardi prochain, et je ne doute pas que vous obteniez une immense majorité—et que justice soit ainsi rendue á votre haute et longue illustration.—J'en suis d'avance très heureux, et vous prie d'agréer avec mes félicitations anticipées, l'expression de mes sentiments admiratifs et dévoués.

"DR HENRI ROGER,
Secrétaire annuel de l'Académie de Médecine."

This letter was soon followed by Dr Roger's visiting-card, thus inscribed :—

"Très honoré et très illustre confrère,—Victoire complète. L'Académie vous a proclamé aujourd'hui, Mardi, Membre *Associé Étranger* avec 46 suffrages, contre 18 seulement donnés à M. Donders. Félicitations dévouées.

"H. Roger."

LIST OF OFFICES HELD AND HONOURS CONFERRED UPON SIR ROBERT CHRISTISON.

Offices held in this Country.

Professor of Medical Jurisprudence, University of Edinburgh,	1822 to 1832
Professor of Materia Medica and Therapeutics, University of Edinburgh,	1832 to 1877
Professor of Clinical Medicine, University of Edinburgh,	1832 to 1855
Dean of the Faculty of Medicine, University of Edinburgh,	1832 and 1840
Member of the University Court, appointed by the Senatus,	1859 to 1877
Member of the University Court, appointed by the General Council,	1879 to 1881
Twice President of the Royal College of Physicians, Edinburgh,	1839 and 1848
Representative of the Crown for Scotland in the General Medical Council of Great Britain and Ireland,	1858 to 1877
President of the Royal Society of Edinburgh,	1868 to 1873
Physician in Ordinary to the Queen for Scotland,	1848 to 1882
President of the British Medical Association, . . .	1875
President of the Public Health Section of the Social Science Association,	1863

All these appointments entailed duty to be done or responsibility to be incurred. In addition, he was obliged to decline—

The Presidency of the British Association, offered to him in	1876
Examinership in Natural Science, along with Professor Tyndall, of Candidates for the Royal Engineers and Royal Artillery,	1853

Honorary Appointments in this Country.

Honorary Fellow of the Dublin Law Institute,	1842
Honorary Member of the Medical Society of London,	1873
Honorary Member of the Royal Medico-Chirurgical Society of London,	1875
Honorary Member of the Medico-Psychological Association of Great Britian and Ireland,	1880
D.C.L. of Oxford University,	1865
LL.D. of Edinburgh University,	1872
He was also offered, but was obliged to decline, the degree of—	
LL.D. of Cambridge University,	1880

Honorary Appointments in Foreign Countries.

Corresponding Member of the Medico-Chirurgical Society of Berlin,	1834
Corresponding Member of the Royal Academy of Medicine of Paris,	1835
Honorary Member of the Imperial Medico-Chirurgical Academy of St Petersburg,	1838
Corresponding Member of the Imperial and Royal Medical Society of Vienna,	1839
Honorary Member of the College of Pharmacy of New York,	1839
Member of the American Philosophical Society,	1841
Honorary Foreign Member of the Medical Society of Hamburg,	1841
Corresponding Member of the Medico-Chemical and Pharmaceutical Club of Liége,	1842
Associate of the College of Physicians of Philadelphia,	1848
Foreign Associate of the Medical Society of Norway,	1853
Corresponding Member of the Royal Medical Society of Athens,	1858
Honorary Member of the Royal Academy of Medicine of Belgium,	1864
Honorary Member of the General Pharmaceutical Society of Austria,	1867
Foreign Associate of the Academy of Medicine of France,	1875
Ordinary Member of the Royal Association of Italians of Merit,	1881

CHAPTER XVII.

THE LAST.

REFLECTIONS AT AGE OF SEVENTY—AT SEVENTY-FIVE—DANGEROUS ILLNESS — RECOVERY — FANCY BIOGRAPHICAL SKETCH — NEW OCCUPATIONS — *OPERA MAGNA* ABANDONED — DRAWING — HANDWRITING — DOGGEREL RHYMES — BODILY AND MENTAL POWERS AT EIGHTY-TWO — BEN NEVIS — "NETHER LOCHABER" — LETTER TO COINDET — LAST LETTER — LAST HILL-CLIMB — LAST ILLNESS AND DEATH — FUNERAL.

On his seventieth birthday Sir Robert gives way to the somewhat melancholy reflections naturally suggested on reaching the stage of life when the activity of man is usually ended, and beyond which any considerable degree of mental or bodily energy that may remain is considered exceptional, and at the best not destined to be of long duration. But there is no consciousness of physical decay betrayed in his reflections. He is chiefly concerned as to the use he has made of the unusual strength vouchsafed to him, and whether he has worked hard enough or in the directions most suited to his capacities.

Five years later there is no sign of physical decay.

He is still discharging the duties of a Volunteer captain, apparently as efficiently as ever. He notices, however, a diminished power of continued mental application in himself.

REFLECTIONS ON ATTAINING AGE OF SEVENTY.

"*July* 18, 1867.—I this day completed my seventieth year. Various and often conflicting thoughts crowd upon me on this occasion, sad and foreboding in general, but soothing all, and not infrequently cheering. To outward eye my course in life has been smoothly fortunate and happy—and a disposition naturally cheerful has perhaps gone far to make it so; but nevertheless I have had many trials, bodily as well as mental, the former especially numerous in the shape of fevers. One of the greatest blessings of the many that have been vouchsafed to me has been that, whether from the nature of these trials or from constitution of mind, few of them were attended with anxiety. I think the general absence of that complication has been the cause of a circumstance which has often surprised me,—that even my frequent severe fevers, six in number, between my twenty-first and thirty-ninth year, and many ephemeral attacks since, have had so little effect on my strength that I am now more active and swift in my movements than any of my contemporaries. For it is certain, though strange, that never in any of these illnesses, even in my bad fevers, had I any doubt of recovering; and on the only occasion of my worldly prospects looking alarming—viz., when the University lost many of its

medical students, and my income fell, so that for two years I lived beyond it a little,—even then I had no anxiety, no fear of failing to retrieve my position through some other channel. And soon this was done by my sliding quickly into fair practice as a consulting physician, the most agreeable and instructive of all branches of medical practice. I often reflect whether my gratitude has been sufficient for all the blessings that Providence has granted me. Never to have repined under His dispensations is not enough. Has my gratitude been sufficient? For one blessing it has—and that is, that I have been saved the miseries of an anxious disposition. From what I see around me, this anxiety—anxiety about one's health and affairs and family—is a great source of wear and tear to a man's stamina. I cannot make up my mind as to the sum and substance of my life, as one of faithfulness and utility. Might not more have been accomplished by a more judicious choice of subjects and lines of inquiry? The reply is doubtful. It seems as if more might have been done could I have followed my own bent and wishes as to special pursuits; but the crisis whose solution culminated in my becoming a physician "in practice" in 1847, compelled me to forego all my plans for the advancement of therapeutics—for previously I had year after year lost the means for carrying on costly researches; and when my new line of life supplied ample means, it took away the indispensable ample leisure. I often regret, however, the abandonment of my old dreams of twenty-five years ago about therapeutic inquiry."

ON ATTAINING HIS SEVENTY-FIFTH YEAR.

"To A. C. 18*th July* 1872.

"I find it impossible to overtake my debts of work, whatever resolutions may be made to keep myself on a level with time. Perhaps I am getting lazy. At least I plead guilty to much ingenuity in finding reasons for procrastination. Neither is there the same power of steady application as of old—unless I fall in with something very much to my taste; and even then, to set to with ancient intensity and perseverance brings mischief in the end, because the interest created disturbs sleep. My strength is pretty good, however, as you may judge when I tell you that the inspecting officer kept us Volunteers five hours on parade on the 13th, which did not prevent me from walking two miles home in comfort, though tired no doubt; not so much, however, as my lieutenant.

"These egotistical *memorabilia* are *apropos* of my having to-day completed my seventy-fifth year. How much have I to be thankful for!"

It was not till he had attained his eightieth year that there was any marked abatement in Sir Robert's capacity for mental and bodily exertion, and then the change came from no gradual decay, but from collapse in physical strength, accompanied by fever, so sudden and severe, that all save himself thought it must end fatally. This attack, however, was brought on, or at least greatly aggravated, by over-exertion. In the winter session of 1876-77 he continued his old custom

of walking to his morning lecture at College, starting at half-past eight—and it was a very bad morning indeed which drove him to accept the aid of a cab. But as the session advanced, it was evident to others that he was overtaxing his strength in this and other ways, and hence came the exhaustion. He was ill for a fortnight before there were any signs of abatement in the symptoms; but such was his extraordinary natural force of mind, that during his whole illness, although he was in a dangerous state, he continued to give the most minute and correct directions for his treatment and diet. He never had any fears of a fatal termination, but his recovery was greatly due to the careful nursing of four former pupils, who volunteered to take the night duty alternately from affection for their old teacher. These were Dr Affleck, Dr Blair Cunynghame, Dr Murdoch Brown, and Dr Henry, then Sir Robert's class assistant.

Convalescence after this illness proceeded very slowly, being complicated by an unfortunate *sequela* in the shape of *phlegmasia alba* of one leg. But the indomitable spirit of the man was not yet broken. He immediately combated the swelling of the limb by careful bandaging, and thus was not only enabled to keep up exercise, but in two years got rid of the swelling entirely. His natural good spirits quickly returned, and a few months after his illness we find him thus humorously answering an application made through Dr Beddoe for a sketch of his life:—

"To Dr Beddoe, Clifton. 26*th November* 1877.

"As to a biographical sketch for the proposed series of photographs, I will gladly supply such materials as you may want, but should like a surer direction to your wishes. Should you like, for example, such an introduction as this?—

"'The subject of the following biographical sketch, contesting priority of birth with a twin brother, emerged into life before the arrival of the midwife. He was born in a court entering from the Crosscauseway, one of the narrowest, and at that time dirtiest streets of Edinburgh—which may account for his inordinate attachment to the northern metropolis. He was bred at the bottom of Arthur Street and Salisbury Crags, the summits of which were the familiar playgrounds of his boyhood; whence it is easy to see how it was that mountain-climbing became in all after-life a facility and mania with him. He signalised his early boyhood by being pitched down a deep area head-foremost by a youthful street rough, and being carried home and remaining insensible for two hours —in consideration of which, his biographer and posterity can understand and forgive the occasional vagaries of his manhood,' &c., &c."

This unfortunate illness led to that dangerous change in the life of the aged, when, with the mind still unimpaired, they are suddenly torn from all their habitual pursuits, and cast upon their innate resources for new modes of occupying it. Sir Robert was obliged to give up the remnants of his practice, to-

gether with sundry duties and interests which sprang from it. He had to resign his Chair, and confine his connection with the University to the moderate amount of work required in the University Court, and as a member of the committee for the extension of the University buildings, to the business of which from the first he gave much time and attention. Thus his time was almost entirely at his own disposal, and at his age it would have been no wonder had he ceased to make any active use of it. His mind, however, was as acute as ever, his bodily strength still considerable, and he immediately began to cast about for new outlets to his surviving energies. As he has himself expressed it, he betook himself to a variety of pursuits, not professional, but suggested by his previous fundamental studies before entering on the study of medicine. Among these new pursuits one of the most important was his entirely original observations on the growth of wood, ascertained by exact measurement, by which, among other things, he proved that not only the annual, but the monthly increase in the girth of trees could be accurately measured. Meteorology also became a favourite study; and when in country quarters, he kept up his knowledge of geology, mineralogy, and botany by constant observation in the field. He also commenced a veritable *opus magnum* on the medical relations of Life Assurances, which unfortunately he was obliged to abandon from increasing irritability of the eyes, a complaint to which he had been liable for some years. This must have been a severe blow, which, however,

he took silently and without complaint. The subject of Life Assurance was one which he had special opportunities of studying during his long tenure of office as medical adviser to the Standard Life Assurance Company. He had formed entirely original opinions on the subject, which he never committed to paper, as he was unable to finish the extensive and complex investigations on which they were founded. In this inquiry he intended to embody the results of forty-five years' statistics of the deaths in the Standard Company, which he had kept in great detail, and in the most beautiful handwriting, in the leisure moments of the most active years of his life.

It now became evident to Sir Robert that he must give up all literary work except of the very lightest kind—a serious limitation to him; but, like a good general obliged to fight a losing battle, he was no sooner driven from one position than he took up another. His eyes having in a great measure failed him, he had recourse to his fingers, and proceeded to construct a multitude of little boxes of pasteboard covered with red paper, in which he stored up minerals and other objects of scientific interest which had accumulated in his possession in the course of years. He also utilised his neatness of hand by binding a number of his own writings, or newspaper cuttings of subjects which interested him, into little volumes, and by making *menu* cards bordered by ferns beautifully dried by himself.

When in the country, drawing, which he had begun only late in life, became a greater resource to him

than formerly, now that he was more confined to the house by inability to go long excursions. When at Ballachulish in the last two autumns of his life, he drew on a larger scale than he had previously ventured to do; and it is remarkable that this work, at the great age of eighty-three, shows a decided advance upon former efforts. It was characteristic of his long training to scientific accuracy that he should insist on the utmost fidelity in his outlines, and so far did he carry this, that in the largest of his efforts — a panoramic view, measuring 54 × 8 inches, of the whole ranges of mountains seen from Onich House—he laid down the slopes of the hills and their angular distance from one another by the sextant. And although this system would be inadmissible in a finished work of art, it is wonderful how much of the natural grandeur of the scene is shown in his mere outlined sketch.

The fact that Sir Robert continued to be able to draw so minutely and with such a steady hand as his drawings prove, shows clearly enough both that his eyesight was perfect, in spite of the irritability of the eyes, and that his nervous energy was well preserved; and such indeed continued to be the case until the end, as within three weeks of his death his handwriting was as beautiful and regular as in his best days. A few years before his death, favoured by his near-sightedness, he could still write in so small a hand that even young people could not read it without a magnifier, yet every letter was found to be perfectly formed. We give here a specimen of his handwriting

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We hired a gig the same evening to Callender, and visited the Falls of Bracklyn; where we made a somewhat interesting observation. At the lowest and principal Fall the Bracklyn breaks through a rocky wall into a fine pool, open down-stream and easily accessible. Owing to long drought the water had not been coloured by a flood for some weeks; so that the stream must have conveyed nothing but the water of springs. Accordingly we were struck by observing the distinctness of the stones at the bottom of the pool, and resolved to ascertain somehow the depth, which was evidently considerable. A very tall vigorous briar shoot, fourteen feet long, supplied the measure. Stripping off the luxuriant leaves except at the summit, tying a big stone to the other end, and standing on a large boulder on the brink, I swung the briar into the middle of the pool. It sunk over head, with at least two feet of water over its leafy top. Nevertheless we could quite easily trace the stem to the bottom, and distinguish the stone attached to it. This extreme degree of transparency is very rare in Scottish rivers and lakes. The water of the Highland lakes is usually called very transparent. But I have since found, that in Loch-Earn Loch-Lomond, and Loch-Katrine a bright white disc of porcelain cannot be discerned at a greater depth than eighteen feet.

Next forenoon we again shouldered our knapsacks for Lochearnhead. In order to appreciate fully the difficulties of the once formidable Pass of Leny, we left the road, and for a long distance scrambled up the edge of the impetuous, precipitous

Gentlemen

Candidates no longer, but Fellow-doctors, — I have to request your attention for a little, till I discharge what is left of my duty towards you, by addressing to you, ere you quit these university walls for the last time, a few words of exhortation and advice; — of exhortation, to persevere in the studies you have thus far successfully prosecuted, — and of advice, that you may guide yourselves safely along the rugged path of active life, which it will henceforth be the lot of you all to tread.

You have reached at length the height of your ambition as students. You have attained to the highest honor which this university has it in her power to confer. and you have attained to it after a course of at least four years of severe discipline in the multifarious sciences that form the groundwork of medical knowledge. During this long period I have reason to know that most of you have applied yourselves to your studies with diligence and ardour; many, to the sacrifice of other objects usually more attractive to the young; and not a few, to the hazard, or even actual injury of health. Nevertheless I am sure you will

taken almost at random from his autobiographical MS.; also a single page from a copy of his Graduation Address in 1836, made for his amusement in a very minute hand.

In his correspondence, as well as in sketching, Sir Robert invariably used hardened quills, but he had none of the difficulty in making them which is one of the chief objections urged against them. And here we may remark that there goes much art to the economical using as well as the making of a pen. Not only did he mend his pens rapidly and easily, but he laid so light a hand on them that he has often assured us he has carried on the whole of his correspondence and other writings for two months without ever making a new split in his pen.

But the various handiworks we have described were not his only resources. When wearied with them, or completely overcome by the condition of his eyes, he betook himself to the composition of "doggerel rhymes," on any occurrence of his daily life which struck his fancy, as described in the following extract, to which we append the particular doggerel referred to. He might have added in the letter that his muse sometimes took a higher flight, as when he translated into English verse some of Horace's Odes.

DOGGEREL VERSE.

"Dr Beddoe, Clifton. 30*th November* 1879.

"I promised Agnes, before she left Edinburgh, a copy of 'The Climbing of Ben Vrackie.' I have been slow in fulfilling that promise. Here it is at length, however,

and, in atonement, accompanied by more doggerel on a totally different theme. You may wonder I should be old fool enough to occupy myself in such idleness. The simple truth is, that in the evenings my irritable eyes will seldom let me either read or write, and so, while I am to all onlookers asleep, or at least too sleepy-headed to be thinking of anything, recollections will come across me, and are very apt to do so in the shape of doggerel verse.

Escaped from Town, the College, and his Classes,
A Celtophil, whom no born Gael surpasses
For Celtic love and zeal,—Professor Blackie
Invited me to climb, like him, Ben Vrackie.
Forthwith we start, a rather motley crew,
Whose ages range from nine to eighty-two.
Foremost, with tiny steps, trots little Rob;
In rear, with longer paces, stalks Sir Bob,
With David, Jack, John, James, and Jetten too,
Resolved that one and all the feat should do.
No bog to wade, no precipice to scale,
No giddy path whereon our hearts might fail,
No slippery scaur, no frightful peak to crown,
No Alpine scrape, in short, to win renown,
We met that day, for me to celebrate:
A plain unvarnished tale I must relate.
Sometimes we climb o'er bright green grassy bed;
Sometimes on flowery, short, crisp heath we tread.
At seventeen hundred feet in open sky,
A wondrous field of foxglove we descry,
As we ere long still higher regions gain,
With shortened steps o'er tempting slopes we strain
Of bearberry, cranberry, and Myrtillus,
Of whortleberry, Alpine Alchemillas,
And mountain raspberry, whose stems before us
No berries show, unlucky Chamæmorus!
At length with failing breath the top we reach;
At once upon the welcome sward we stretch
Our tottering limbs—our strength almost expended—
No feeling left, save that our toil is ended.

But soon we note, our wonder to engage,
The top, a rock resembling Diallage.
Or is it Hornblende rock? But round this crest
Dense dwarf-myrtillus turf invites to rest;
An invitation we accept with pleasure,
Meanwhile looking round us at our leisure.
What we beheld spread out beneath our feet,
To pretermit I humbly will entreat.
We had not travelled all this weary way
To look down on Loch Tummel or Strathtay.
Our bolder eyes to higher objects soar;
And Ben, Meahl, Cairn, Craig, Stob alone adore.
Yet woods, fields, villas, villages, loch, river,
Do make the scene below look 'very clever.'
Now right in front toward the north arose
The three grey lofty dome-like Ben-y-Gloes;
Whose stony flanks appeared as we surveyed them
As unproductive as their Lords had made them.
Then through a chink between them Ben Muich-Dhui
(Which means in Erse the hill of the black 'sooie'),
Or else Cairn-Toul. Eastward in the sunny glow
Shines Ben-na-Bhuird with glittering fields of snow.
A ragged row of rocks beside it loom
Faintly, and the outline of Ben A'an assume.
Ben Uarn succeeds, whose terraced upland plain
Supports the angler's jewel, Loch-na-Neain—
Glas Tulchan, which I climbed in days of yore
Braemar's great chain of mountains to explore—
And Glas Meahl, with Legichich its close ally,
Whose ptarmigan in flocks unceasing fly.
Southward Mount Blair erects its flattened cone.
Dimly, due south, the Lomonds stand alone.
Due west from them the Ochils' tiresome ridge,
Without a break, shows nothing o'er their edge.
But northward now, in frowning dense battalion,
Behold Ben Lawers, Meahl-Gharb, Cairn Mairg, Schehallion,
The grandest group of all within our ken.
Veiled in a north-west mist, full many a Ben
In tangled mass—the mountains of Glencoe,
The Buchael-Etive—some we do not know—
Ben Nevis, and Ben Alder, and Black Mount—
Admit of mention only in this count.
In truth, how much soever we might stare,
They would not show themselves—but must be there.

Thus having scanned the round of our horizon,—
With just a drop of alcoholic 'pison,'
To put some mettle in our wearied feet,—
Downward we execute our steep retreat;
Next swiftly skim the moor and cross a burn;
Then charioteering safely home return.
Thus was achieved the climbing of Ben Vrackie,
Feat twice accomplished by Professor Blackie."

Besides Ben Vrackie, Sir Robert climbed several of the minor hills near Balmacneil, his autumn residence in 1879; and altogether got into very fair condition, considering how long his capacity to take exercise had been retarded by the remains of the *phlegmasia alba*.

BODILY AND MENTAL POWERS RALLY AT AGE OF EIGHTY-TWO.

"To A. C. 23*d Oct.* 1879.

"Before we left Strathtay, I found no difficulty in ascending Birnam Hill, 1000 feet; and a few days before we returned, I walked 9 miles without a stop satisfactorily, till reaching the last half-mile. For a few miles I felt as if I could do as much as I could ever have done. But soon I found my right pace for comfort was no longer $4\frac{1}{2}$, but $3\frac{1}{2}$ miles per hour; and I confess to a shameful sense of breakdown when only half a mile from home. Next morning, however, I was quite fresh again. Mental exercise, too, does not fatigue me as it did during summer; and especially it is no longer so apt to disturb my sleep."

In the subsequent two years, Sir Robert continued to enjoy fair health, but a more rapid diminution in

his physical strength was evidently going on. The autumns of 1880 and 1881 were spent at Onich House, a mansion beautifully situated on the northern shore of the entrance to Loch Leven, two miles west of Ballachulish ferry, amidst some of the finest scenery in Scotland—commanding views of the Glencoe mountains to the east, Ardgour and Morven to the west, and of Mull and the fine range of Ben Vair overhanging Ballachulish to the south. It would have been difficult to find a more fitting spot in which this great lover of nature could have spent his last Highland days. Here he employed himself in the study of the geology, mineralogy, and botany of the district, and in taking excursions to the numerous scenes of interest in the neighbourhood. His passion for hill-climbing remained with unabated force; but he could no longer indulge it,—and no doubt it must have cost the veteran leader in former mountain excursions many a pang as he saw the parties start without him. One ambition he had long secretly nourished, and it was with difficulty he was persuaded to turn away from it. He had long desired to see the great amphitheatre of the Ben Nevis precipices from below—a grand scene, which, although quite accessible to ordinary pedestrians, is rarely visited, except by the few who love to leave the beaten track. Although no great ascent is required in this excursion, the route is long and rough, and was altogether much too severe for his failing powers. Ben Nevis continued, however, to exercise a kind of fascination for him; and he delighted to send his guests to climb the mountain or see the

precipices from below, and to listen to their adventures on their return. He also wrote a MS. copy of Dr Macknight's geological account of the mountain.

In his own letters we find Ben Nevis twice mentioned. In the second letter he describes it under a peculiar atmospheric effect, which we have seen more than once, and which makes it to appear, in summer heat, like a snow-clad mountain at a great distance, and three or four times its actual height.

BEN NEVIS.

"To A. C. 29*th July* 1880.

"At Ballachulish we shall have the briny deep again at our door, instead of an expanse of fresh water, as of late; but I doubt whether this change will be in favour of boating exercise. The most teasing prospect to me is Ben Nevis, which I doubt not that all are training for, but which I must give up, unless some new patent come out for ascending; for it is a hard climb—at least was so sixty-three years ago—over big angular stones for the upper thousand feet."

Journal. "*Sept.* 9, 1880.—Driving home from Fort William, we were favoured with a wonderful view, through a gap in the hills, of the upper region of Ben Nevis. The entire mass of its broad head, for about 1500 feet down, was displayed. This vast slope is one unbroken sheet of loose stones, without a sign of vegetation, or even of soil. In the horizontal evening sun the slope appeared of a light grey, almost white, colour, so that the mountain seemed crowned with an immense cap of snow.

"Over it, and nearly resting on it, hovered, in an otherwise clear sky, a great dense white cloud, exactly of the form of the mountain-top inverted, so that each might seem the reflection of the other. Increased apparent elevation, form, and colour, made the scene unusually grand. I had often seen Ben Nevis at the same spot before: on this occasion it was difficult to be convinced that I was looking at the same familiar object."

Love of nature and devotion to science were not the only solaces of Sir Robert's declining years at his country quarters. From the vigour of his mental powers he still retained the faculty, so rare in the aged, of making new friends. His conversation was as interesting and instructive as ever, and was suited to the tastes or capacities of each individual, so that few left his presence without feeling that they had learned something from him. Thus he soon became intimate with several of his neighbours at Ballachulish. He had much pleasant intercourse, among others, with the late Mr Anderson of Ardsheal and his family; with the Dean, now Bishop of Argyle and the Isles; and with Dr and Mrs Campbell of Craigrannoch. Many a pleasant day he passed with the latter in their little steam-launch the "Cona," in which he was enabled without fatigue to explore the beautiful coast scenery of Loch Linnhe, Loch Leven, and Lochiel. With his nearest neighbour, Dr Stewart, the minister of the parish, he struck up a

particular friendship, and he thus pleasantly describes their first meeting :—

"NETHER LOCHABER."

Journal. "*Onich House, Ballachulish, Aug.* 4, 1880.—Before leaving home, I was urged by Mr Sadler, Curator of the Botanic Garden, to make acquaintance with the Rev. Mr Stewart, as a most agreeable companion, and the first authority on all matters relating to the surrounding country. But he could give me no information regarding Mr Stewart's whereabouts, further than his having long known him as 'Stewart of Nether Lochaber;' and I was unable to trace any such parish or place in Black's 'Guide,' Boyd's 'Edinburgh Almanac,' or the Ordnance Survey Map. Great then was my astonishment when, strolling out on the morning after my arrival, I had not gone twenty yards when I was accosted by the very man I wanted opposite his own door. I found him to be all that I had been promised; and I hope and believe that we have struck up a brotherhood with one another. He laughed at my difficulty in identifying him, and thus explained the mystery. In his young days, he was in the habit of communicating his scientific observations to the journals; but to avoid the risk of a young minister being thought by his parish to be 'following divisive courses,' he concealed the authorship, and dated his writings anonymously from 'Nether Lochaber. In time, of course,

the secret came out, and ever since he has been known by scarcely any other designation than 'Stewart of Nether Lochaber,' or simply 'Nether Lochaber.'"

But this healthy life, all these pleasant resources, and the kindness of his friends, could not arrest the decay of strength, which in the autumn of 1881 was only too manifest. It is rarely, indeed, that any tinge of melancholy, still less of despondency, can be detected in his correspondence; but now the sense of failing strength is too keen to be suppressed. It is interesting to observe, however, that it is only in the three last letters or journals, of any consequence, which he wrote, that any serious complaints of the infirmities of age are to be found, and he makes his sad complaint with his habitual dignity of thought and style. The first of these letters is specially interesting, as it was written under the impression that one of the friends of his youth—the Coindet of whom he has so much to say in his autobiography—still survived. But this was a mistake. In a few weeks his letter was returned with an intimation that his old friend had died three years previously.

In the second letter, the last which he wrote to his son in India, as well as in the first, he still speaks of the "*opus magnum*," and even of "*opera magna*," which he has in hand, but it is evidently with failing hope.

The extracts from his journal give, in his own words, an account of his final mountain-climb, and one of the last walks of any length which he was able to take.

TO HIS OLD FRIEND COINDET. TOO LATE!

"BALLACHULISH, ARGYLESHIRE,
16*th August* 1881.

"MY DEAR COINDET,—I have often of late meditated writing to inquire about your health, and how you have been standing the gnawings of the tooth of time. But there has always been wanting a more direct, tangible, practical object, till now.

"A friend of mine, who returned the other day from a visit to the Alps, informed me that he was much distressed to find multitudes of *goîtrous* people at Martigny; and that medical men there and in other parts of Switzerland were unacquainted with the simple and effectual treatment now followed at Edinburgh, by means of common blisters applied over the tumour. My friend implored me to communicate the fact to some physician of note in Switzerland. *Hinc illæ litteræ.*

"The blistering treatment was a deduction from the extensive experiments of the late Sir Ranald Martin, while he was in the Indian medical service, on the *goîtrous* subjects of the Himalayan valleys, whom he cured by applying strong iodine ointment over the whole tumour in such a way as to cause vesication. In cases not too far advanced a cure seemed invariable; and in very old cases there was at least improvement. Amelioration seems to have commenced at once; and a second application was not infrequently unnecessary. Now the cure could not be owing to the constitutional action of iodism, for it began long

before that action could arise; nor did Sir Ranald mention that symptoms of iodism did occur. The inference drawn by us in Edinburgh was, that the curative agency was simply counter-irritation; and consequently, that common blisters might prove equally effectual. And so it has turned out. Our Scotch *goîtres* are always taken hold of in good time, and a 'fly-blister' seems always to cure them. Yours may be of a more stubborn type; and yet, surely not, if also taken in hand at an early stage.

"Having delivered myself of my errand, I add what you may be as desirous to learn regarding me as I am anxious to hear concerning yourself. In 1877 my seventh attack of fever nearly cut me off; and by ordinary medical rule it ought to have done so. But I recovered — not, however, without a monstrous '*phlegmasia alba*' (fortunately not also '*dolens*') of the whole left limb, by which I was kept three months on the sofa, after my fourteen days of fever. In consequence, I had to resign professorship as well as profession; and it was time, for I completed my eightieth year before I was allowed to drive out a little. Late improvements in our University constitution enabled me to retire with a retiring allowance of two-thirds of my active professorial income—a very satisfactory innovation.

"My mind has ever been too restless not to be constantly occupied. I have continued to take an active part in University business as member of our now supreme power, the University Court, which has displaced in that sphere the 'Honourable Patrons, our

Town Council.' And for other occupation I have betaken myself to a variety of pursuits, not professional, but suggested by my previous fundamental studies before entering on the study of medicine. If you have any curiosity about these, I shall send you the printed products. I have further an *opus magnum* in hand, on the medical relations of life assurances, as to which I have had great experience, and consequently see that in some important respects principles and practice are much in fault, and still, in fact, in their infancy.

"But, O Coindet! what presumption is it in me to plan such work, when I have just entered on my eighty-fifth year, and recognise the truth of King David's warning, that in advanced old age life is a season of 'labour and sorrow.' My eyes are so irritable that I can read little without suffering; my hearing is not so sharp as before my fever, and consequently I must often beg mumbling speakers, of whom there are many, to repeat what they say; I can no longer pull an oar on a Highland loch (fresh or salt) for several hours without fatigue; and when my visitors and sons climb one of the fine mountains or wild rough valleys of this grand country, I must now remain at the bottom. You may guess what privation this is to one of my climbing propensity, when I add that my present autumnal residence is within easy distance of Glencoe and Ben Nevis.

"I send you my most recent photograph, taken on my last birthday. It is that, you see, of a *homo valde barbatus*, which the subject of it has been,

through laziness, since his fever. But every one in Scotland now wears a beard, except our barristers, to whom it is a forbidden luxury by order of the Court of Session!—I am, yours always, dear Coindet, sole survivor of my old hospital companions."

LAST LETTER.

"To A. C. *Aug.* 23, 1881.

"We have had very changeful weather since coming to Ballachulish. Two days fine, and two days of cloud, mist, and drizzle, have alternated for three weeks past. I do not know whether this is the cause of my benefit from mountain air and scenery having hitherto been capricious and scanty. Every seven or eight days of slow advancement is effaced by one of the many aches and other ills to which I am subject. I rather imagine that this is my inevitable fate now. I do not repine, however, at having to surrender the oar, and to stay at the foot while the others are at the top of the mountain. But I regret to be much circumscribed in mental work; for I have several *opera magna* on hand, or rather once had—for both writing and thinking trouble my head, and render me giddy for some time if too long continued. Two hours daily in general will exhaust my capability.

"My last severe illness was a cruel attack of febrile rheumatism in the abdominal muscles, which kept me nearly motionless for ten days, and whose effects must, I think, still account for my precarious and not satisfactory convalescence.

LAST MOUNTAIN-CLIMB.

Journal. "*Sept.* 5, 1881.—Feeling in good trim, I tried my first climb for this season on Aonach-more, 1250 feet to its point immediately behind this house. I had to stop half a minute every hundred paces over on the whole a gentle ascent, not from loss of wind but from failing limbs—a new event in my history. It took me one hour fifteen minutes to reach the top. I rested there half an hour, and then descended in the same space of time without resting by the way; and there was afterward half a mile of highway to walk home. It proved too much for me. I was excessively wearied; nevertheless I slept more soundly, and next morning awoke revived."

"*Sept.* 9.—I had the curiosity to measure my average pace in a walk to Corran Ferry and back, four miles. Formerly, when in vigour, I could with difficulty keep down my speed to four miles an hour when the number of paces was almost exactly 1760. This afternoon, at 3¼ miles pace, I took 2088 paces to a mile. *Heu! quantum mutatus ab illo.* I was again much fatigued, but next morning was alert, and ready for a long drive to Strontian."

THE END.

On his return to town in October, Sir Robert's health seemed somewhat restored by his autumnal residence in the Highlands; but a cold in November reduced his strength once more, and in the middle of December he was obliged to take to bed from increas-

ing debility. He was attended by his old friends, Professor Maclagan and Dr Peddie, and for a time there seemed no reason why he might not in some measure be restored, but about the end of the month he was the first to discover that his disease was mortal. He prepared to meet death with the calmness and fortitude which had distinguished him in all times of trial. During the month of life that still remained to him, he was mercifully spared all acute suffering; he was even free from restlessness, and until the last few days his mind was clear and acute. During his last illness he was faithful to science to the end. On the 18th December he finished a little paper "On the Rocks of Ben Nevis for Decorative Purposes," which was written if possible in a more beautiful handwriting than ever. This was read for him to the Royal Society by Professor Turner.

Three weeks before his death he corrected the proof of an article on "Tree Measurements" for the Highland and Agricultural Society; and as long as he could hold a pen, he made a note of the temperature and state of the weather every morning. Sometimes he expressed a wish to see some of his old friends, during the brief interviews with whom he brightened up a little, and there was even a trace of his old humour in his remarks. About this time he had discovered the tumour, which was the cause of his illness. To one of his friends he said: "Once when I lay ill long ago, an old medical friend, Dr Dewar of Dunfermline, called and saw me in bed, and putting his hand on the abdomen he said, 'Doc-

tor, do you know you've got an enlargement of the liver?' I answered, 'No; but if I have, *it's only an old hen* which I have just devoured!'"

To Professor Turner, who mentioned to him the precarious condition of a mutual friend, who was obviously dying from degeneration of the vascular system, he said with great vigour, holding out his arm, "Feel my pulse—there is no degeneration there." Then, after a pause, "But give me your hand," and he placed it over the tumour, saying, "Turner, I have got the arrow in my side here."

To his dear friend Dr John Brown, who was too soon to follow him, he said, "Ah, doctor, you see you will live to write my L.E.G. after all!" to which John Brown replied, "I don't know; you are younger than me in many ways."

In an affecting farewell interview with Principal Sir Alexander Grant, who was one of the few whom he desired to see, he said, "There are few things I look back to in my past life with more satisfaction than the share I had in bringing you here." Sir Alexander was much moved, and taking him by the hand replied, "You have been the most noble and generous friend I ever had; may God bless you!" Sir Robert then added, "My life for four years has been a struggle, but not altogether a disagreeable struggle, against many evils: now I can struggle no more."

Naturally reticent in expressing the deeper feelings of his heart, Sir Robert was all his life reticent as to his religious convictions. To one of his turn of mind, the excessive parade made of religion at times in

Edinburgh was naturally repulsive, particularly as he saw that some of those who made the most show seemed to be not only less truly Christian than ordinary men, but were less honourable in their conduct after than before their alleged "conversion." As Dr John Brown was wont to put it, he could distinguish very well between the *piose* and the *pious*.

Sir Robert was a faithful and attached adherent of the Established Church of Scotland, and for many years was an elder in St George's Church, under the ministry of his friends Dr Stevenson and Dr Scott. He took no part in Church politics, although he was twice appointed a representative elder in the General Assembly. It is evident, however, from several letters, that, had it been necessary, his voice would have been heard in favour of freeing the Church from antiquated and austere practices.

In Sir Robert's writings there are not a few expressions of his humble dependence on Providence, and, above all, of his gratitude to God for His goodness to him. In his last illness he was seen occasionally by his pastor Dr Scott, who thus spoke of him to his friends, "Whatever may be the issue, you have great comfort in him. I was speaking to him of the Fatherhood of God, and he said, 'Christ is everything,—there was never man lived as He lived;' and speaking of the struggles of faith, he added, 'In old age we return to the simple faith of our childhood.'"

It was only in the last few days that Sir Robert's mind gave way. Progressive weakness brought on

delirium, and on the 27th January 1882 he passed away.

Content with our endeavour to show what Sir Robert Christison was in his life, we pass over the eulogiums written after his death. Perhaps the most remarkable tribute of admiration for his character, and regret for his loss, was the public funeral offered by the Magistrates of the city which he loved so well. The funeral took place on the 2d February 1882, and was attended by representatives of all the public bodies of Edinburgh.

It was not only the fact of the offer being made, rare as such an honour has been, but it was the peculiarly solemn demeanour of the vast crowd who witnessed the funeral, that testified to the universal respect and esteem which Sir Robert had won from his fellow-citizens. The onlookers were mostly working people, and it was noticed that scarce a sound was heard from them as the procession passed along. Many spoke of this unusual reverence, and when asked the reason, the answer was, "Because all classes were proud of him, and he had no enemy." It was noticed that some old people of the humbler classes showed a special reverence by coming a little forward from the crowd, and uncovering as the coffin passed.

And now we have come to an end of our task. We trust we have succeeded in showing that Sir Robert Christison's life was worthy of being written, —that there is much in it deserving of study, and, it

may be, of imitation. Greater sons this city of ours may have had, but none who loved it more, or led in it a purer and nobler life. How much dignity and uprightness there must have been in the character of one whom the genial Dr John Brown delighted to call "Ultimus Romanorum"!

LIST OF SIR ROBERT CHRISTISON'S WRITINGS.

Arranged alphabetically under each head, according to marginal note of subject.

LARGER WORKS.

1. A Dispensatory or Commentary on the Pharmacopœias of Great Britain. 8vo, 1842. Adam & Charles Black, Edinburgh. Dispensatory.
   Ditto. Second edition, 1848.
2. On Granular Degeneration of the Kidneys. 8vo, 1839. Adam & Charles Black, Edinburgh. Kidney.
3. A Treatise on Poisons, in relation to Medical Jurisprudence, Physiology, and Practice of Physic. 8vo, 1829. Adam & Charles Black, Edinburgh. Poisons.
   Ditto. Second edition, 1832.
   Ditto. Third „ 1835.
   Ditto. Fourth „ 1845.

   Abhandlung über die Gifte in bezug auf gerichtliche Artzneikunde, Physiologie und Practische Medecin. 8vo. Weimar, 1831.

PAPERS IN SCIENTIFIC JOURNALS, &c.

I.—CHEMISTRY.

1. On the Production of Plumose Alum at the Hurlet Mine near Paisley. Pharm. Jour., ix., 1850, pp. 14-16. Alum.
2. On the Causes of the Milk and Whey-like appearances sometimes observed in the Blood. Ed. Med. and Surg. Jour., xxxiii., 1830, pp. 277-280. Blood.
3. An Inquiry on some Disputed Points in the Chemical Do.

Physiology of the Blood and Respiration. I. On the Mutual Action of Blood and Atmospheric Air. Ed. Med. and Surg. Jour., xxxv., 1831, pp. 94-103; Froriep Notizen, xxx., 1831, col. 81-88.

Concretion. 4. Analysis of a Recto-vesical Concretion. Ed. Med. and Surg. Jour., xxxi., 1829, pp. 64-66.

Gas, oil and coal. 5. On the Comparative Advantages of Oil and Coal Gas. By Christison and Turner. Thomson, Ann. Phil., x., 1825, pp. 190-193; Tulloch, Phil. Mag., lxvi., 1825, pp. 206-210; Froriep Notizen, xii., 1826, col. 49-53.

Gas-burners, oil and coal. 6. On the Construction of Oil and Coal Gas-Burners, and the Circumstances that influence the Light emitted by the Gases during their Combustion; with some Observations on their relative illuminating Power, and on the different modes of ascertaining it. By Christison and Turner. Ed. Phil. Jour., xiii., 1825, pp. 1-39; Annales de Chimie, xxxv., 1827, pp. 309-325, 359-393.

Hya-hya tree. 7. Analysis of the Vegetable Milk of the Hya-hya tree of Demerara. Ed. New Phil. Jour., ix., 1830, pp. 31-35.

Petroleum. 8. Chemical Examination of the Petroleum of Rangoon. Trans. R.S.E., xiii., 1836, pp. 118-123.

Salmon. 9. On the Composition of the Flesh of the Salmon in the "clean and foul" Condition. Proc. R.S.E., vii., 1872, pp. 694-697.

Water, action of, on lead. 10. On the Action of Water upon Lead. Trans. R.S.E., xv., 1844, pp. 265-276.

Do. 11. On the Action of Water on Lead. Proc. R.S.E., vii., 1872, pp. 699-702; Chemical News, xxviii., 1873, p. 15.

Wines, strength of. 12. Notice upon the Alcoholic Strength of Wines. Silliman's Jour., xxxvii., 1839, pp. 363-365; Proc. R.S.E., i., 1845, pp. 249-251.

II.—MEDICAL JURISPRUDENCE.

Arsenic. 1. On the Detection of minute quantities of Arsenic in Mixed Fluids. Ed. Med. and Surg. Jour., xxii., 1824, pp. 60-83; Ed. Phil. Jour., 1824, p. 389; Schweiger Jour., xviii. (Jarb. xiii.), 1825, pp. 347-353.

Do. 2. An Account of several Cases of Poisoning with Arsenic. Ed. Med. Chir. Trans., ii., 1826, p. 273.

Do. 3. On the Taste of Arsenic, and on its Property of Preserving the Bodies of Persons who have been poisoned with it. Ed. Jour. Sc., vii., 1827, pp. 380, 381.

4. Poisoning with Arsenic: Nos. II. and V. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxix., 1828, pp. 18-27, and xxxiii., 1830, pp. 67-76. — Arsenic.
5. Detection of Arsenic in the Liver of a Body three months after Burial. Ed. Med. Jour., iii., 1843, p. 256. — Do.
6. On the Detection of Arsenic in Medico-Legal Researches by Reinsch's Test. Ed. Month. Jour. of Med., iii., 1843, pp. 774-777. — Do.
7. On Magnesia as an Antidote to Arsenic. Ed. Med. Jour., vii. (i. N.S.), 1846-47, p. 158. — Do.
8. Account of a late Remarkable Trial for Poisoning with Arsenic. The Wooler Case. Ed. Month. Jour. of Med., i., 1856, pp. 625-632, 707-718, 759-761. — Do.
9. On the quantity of Poison which has been found in the Stomach in Murder by poisoning with Arsenic. Ed. Med. Jour., iii., 1857-58, pp. 481-483. — Do.
10. Two Trials involving the question of Burning before and after Death: No. IX. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxv., 1831, pp. 296-323. — Burning before and after death.
11. Poisoning with Elder Flowers and Leaves: No. VII. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxiii., 1830, pp. 67-76. — Elder flowers and leaves.
12. On the Poisonous Properties of Hemlock and its Alkaloid Conia. Trans. R.S.E., xiii., 1836, pp. 383-417. Erdm., Jour. Prak. Chem., xi., 1837, pp. 381-383; Liebig, Annal., xix., 1836, pp. 58-98; Jour. de Pharm., xxii., 1836, pp. 413-420. — Hemlock.
13. Notice of a Case illustrative of the Treatment and Fatal Dose in poisoning with Hydrocyanic Acid. Ed. Med. Jour., x. (i. 3d Series), 1850, pp. 97-99. — Hydrocyanic acid.
14. Observations on a Case of Infanticide. Ed. Med. and Surg. Jour., 1826, pp. 73-76. — Infanticide.
15. On some of the Medico-Legal Relations of the Habit of Intemperance: A Lecture to the Royal College of Surgeons, Edinburgh, 1858. Adam & Charles Black, Edinburgh. — Intemperance.
16. On the Poisonous Properties of the Bark of the Laburnum Tree: No. XI. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., lx., 1843, pp. 303-308. — Laburnum bark.
17. On the Present State of Medical Evidence. A Lecture to the R.C.P.E. Ed. Monthly Jour. of Med., xiii., 1851, pp. 401-430. — Medical evidence.
18. Observations as to the Poisonous Properties of Œnanthe crocata. Proc. R.S.E., i., 1845, pp. 453, 454. — Œnanthe crocata.

Opium. 19. Poisoning with Opium: No. VI. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxiii., 1830, pp. 67-76.

Do. 20. On the Effects of Opium-eating on Health and Longevity: No. X. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxvii., 1832, pp. 123-135.

Oxalic acid. 21. An Experimental Inquiry on Poisoning by Oxalic Acid. By Dr Christison and Dr Coindet. Ed. Med. and Surg. Jour., xix., 1823, pp. 163-199, 323-337. Majendie, Jour. de Phys., 1823, pp. 274-300.

Poison, arrow. 22. On a New Poison, Wu-Isau, from the interior of China. Ed. Med. Jour. 1858-1859, p. 869.

Do. 23. On a new Arrow Poison from China. Proc. R.S.E., iv., 1862, pp. 167, 168.

Poisoning, imputation of. 24. Imputation of Poisoning: No. I. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxix., 1828, pp. 18-27.

Poisoning, obscure. 25. An Account of some obscure cases of Poisoning. Ed. Med. Jour., 1843, iii., p. 255.

Smith case, 1827. 26. Account of the Medical Evidence in the Case of Mrs Smith, tried for Murder by Poison. Ed. Med. and Surg. Jour., xxvii., 1827, pp. 441-472.

Strangling. 27. Murder by Strangling, with some remarks on the Effects of External Violence on the Human Body soon after Death: No. IV. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxi., 1829, pp. 229-250.

Sulphuric acid. 28. Disfiguring the Countenance with Sulphuric Acid: No. III. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxi., 1829, pp. 229-250.

Do. 29. Trial for Poisoning with Sulphuric Acid: No. VIII. of Cases and Obs. in Med. Jurisp. Ed. Med. and Surg. Jour., xxxv., 1831, pp. 296-323.

III.—MATERIA MEDICA.

Adulteration of drugs. 1. Report of the Royal College of Physicians, Edinburgh, on the Adulteration of Drugs (1838), with Appendix of Observations, by Dr Christison.

Bael fruit. 2. Letter on the Bael Fruit. Med. Times and Gaz., ii. 1878, p. 86.

Calabar bean. 3. On the Properties of the Ordeal Bean of Old Calabar, Western Africa. Ed. Monthly Jour. of Med., xx., 1855, pp. 193-204; Jour. de Pharm., xxviii., 1857, pp. 287-294; Pharm. Jour., xiv., 1855, pp. 470-476.

4. Sur l'emploi de Chloroform, Ann. de Chimie, xxii., 1848, pp. 301-311. — Chloroform.
5. Observations on the effects of Cuca or Coca, with Supplement. Brit. Med. Jour., i., 1876, pp. 527-531. Also in Trans. Bot. Soc. Ed., xii. 1876. — Cuca.
6. Tables of Nutriment in various Dietaries, 1854. Neill & Co. Tables of Nutriment, 1866. — Dietaries.
7. On the Sources and Composition of Gamboge, with an Examination of some analogous concrete juices. Hooker, Comp. Bot. Mag., ii., 1836, pp. 233-246; Liebig, Annal., xix., 1836, pp. 221-224. — Gamboge.
8. Notice regarding the Composition and Properties of certain concrete Juices resembling Gamboge. Proc. R.S.E., i., 1845, pp. 151-153. — Do.
9. On the Sources and Composition of the different kinds of Gamboge. Proc. R.S.E., i., 1845, pp. 123-125; Liebig, Ann., xxiii., 1847, pp. 172-205; Jour. de Pharm., xvii., 1850, pp. 241-263. — Do.
10. Observations on a New Variety of Gamboge from Mysore. Pharm. Jour., vi., 1847, pp. 60-69. — Do.
11. On the Gamboge Tree of Siam. Proc. R.S.E., ii., 1851, pp. 263-265; Pharm. Jour., x., 1851, pp. 235, 236. — Do.
12. On a New Source of Kino. Pharm. Jour., xii., 1853, pp. 377-379. — Kino.
13. Lettre sur différentes sortes d'Opium. Jour. de Pharm., xxi., 1835, pp. 542-548. — Opium.
14. Address on Pharmacy to the North British Branch of the Pharmaceutical Society. Pharm. Jour., 1855, xiv., pp. 307-311. — Pharmacy.
15. Physiological Effect of the Juice of *Scopolia lurida*, Dun. (*Anisodus luridus*, Link.) Ed. Bot. Soc. Trans., ix., 1868, p. 482. — Scopolia lurida.
16. Address on Therapeutics to the British Medical Association. British Medical Journal, 1858, pp. 671-675. — Therapeutics.

IV.—MEDICINE.

1. On the Actions and Uses of Alcohol in Health and Disease. Sir Robert Christison and John Beddoe, M.D., F.R.S. Med. Times and Gaz., ii., 1878, pp. 622-625. Also, 12mo, Pardon & Sons, London. — Alcohol.
2. Lecture on Bright's Disease of the Kidneys. Ed. Monthly Jour. of Med., xii., 1851, pp. 551-573. — Bright's Disease.

Cholera. 3. Observations on the Duration of Cholera. Ed. Jour. Sc., vii., 1827, p. 379.

Do. 4. A Selection from the Russian Official Reports on the Epidemic Cholera of Orenberg; from the German edition of the Reports by Professor Lichtenstädt of St Petersburg. Ed. Med. and Surg. Jour., xxxviii., 1832, Suppt., pp. 1-56.

Do. 5. Account of the Arrangements made by the Edinburgh Board of Health, preparatory to the Arrival of Cholera in that City. Ed. Med. and Surg. Jour., xxxviii., 1832, pp. 254-288.

Diabetes. 6. Cases and Observations on Diabetes. Lond. and Ed. Monthly Jour. of Med., i., 1841, pp. 235-252.

Digitalis. 7. Notes and Observations on Medical Practice. Ed. Med. Jour., xx., 1855, pp. 1-9. I. Digitalis.

Dysentery. 8. An Account of a Local Epidemic of Dysentery. Ed. Med. Jour., xvii., 1853 (viii. 3d Series), pp. 508-512.

Fever. 9. General Doctrines of Fever, Continued Fever, and Hectic Fever. Tweedie's Library of Medicine, i., 1840. Chapters on the above.

Do. 10. Account of a Typhoid Fever, apparently originating in Local Miasma. Ed. Monthly Jour. of Med., vii., 1846, pp. 1-12.

Do. 11. On the Distribution of Fever Patients in an Hospital. Ed. Med. Jour., x., 1850 (i. 3d Series), pp. 262-272.

Fevers and inflammations. 12. On the Changes in the Constitution of Fevers and Inflammations in Edinburgh during the last Forty Years. Ed. Med. Jour. Part I., iii., 1858, pp. 577-595; Part II., iv., pp. 38-48. Also Reprint: Murray & Gibb, Edin.

Health, public. 13. Address to the Social Science Association on Public Health: 1863. Ed. Med. Jour., 1863. Part I. (ix. N.S.), pp. 421-443. Oliver & Boyd, Edin.

Meat-juice. 14. Notes and Observations on Medical Practice. Ed. Monthly Jour. of Med., xx., 1855, pp. 1-9. 2. On Preserved Meat-juice.

Obstruction. 15. Observations on a Case of Fæcal Obstruction. Ed. Med. Jour., 1853, xvii. (viii. 3d Series), pp. 252-256.

Opium. 16. On the Employment of Opium for Arresting Acute Internal Inflammations. Lond. and Ed. Monthly Jour. of Med., i., 1841, pp. 90-98.

Do. 17. Supplement to the Paper of Mr R. Little on the Habitual Use of Opium, more especially the Mode of Cure. Ed. Monthly Jour. of Med., 1850, x., pp. 531-538.

18. Lecture on Partial Paralysis. Ed. Med. Jour., x. (i. 3d Series), 1850, pp. 554-564. — Paralysis, partial.
19. An Account of some Experiments on the Diet of Prisoners. Ed. Monthly Jour. of Med., xiv., 1852, pp. 415-426. — Prisoners, diet of.
20. On Scurvy: Its Connection with a too purely Saccharo-Farinaceous Diet. Ed. Monthly Jour. of Med., vii., 1847, p. 873; viii., 1848, p. 1. — Scurvy.
21. An Investigation of the Deaths in the Standard Life Assurance Company. Ed. Monthly Jour. of Med., xvii. (viii. 3d Series), 1853, pp. 105-142; and iii., N.S., 1857-58, pp. 93-95. 1858: R. & R. Clark. — Statistics, life assurance.
22. Report on the Medical Statistics of the Standard Life Insurance Company, Home Department, 1845-1880, by the late Sir R. Christison, Sir A. Christison, and Dr D. Christison. Printed for the Company. — Do.
23. On the Treatment of Tapeworm by the Male Shield-Fern. Ed. Med. Jour., xvii. (viii. 3d Series), 1853, pp. 47-50. And Note to a Paper by Dr Currie on the same subject, 1869, Part II., xiv., pp. 812-815. — Tapeworm.
24. Properties of Healthy Urine; Functional Diseases of the Kidneys; Gravel; Urinary Calculus; Diabetes; Suppression of Urine; Errors in the Position and Conformation of Kidneys; Hypertrophy of Kidneys; Inflammation of Kidney; Granular Degeneration of Kidney; Other Chronic Diseases of Kidney; Diseases of the Bladder and Urethra. Dr Tweedie's Library of Medicine, iv., 1840. Chapters on the above. — Urinary diseases.

V.—BOTANY.

1. Annual Address to the Botanical Society of Edinburgh, 1874: History of the Botanic Garden. Trans. Bot. Soc. Ed., xii., pp. 189-204. — Botanic Garden, Edinburgh, history of.
2. Letter regarding the Introduction of Cinchona into India. Trans. Ed. Bot. Soc., xi., 1873, pp. 110-112. — Cinchona.
3. Notice of two Fossil Trees lately uncovered in Craigleith Quarry, near Edinburgh. Proc. R.S.E., viii., 1873, pp. 104-108. Trans. R.S.E., xxviii., 1874, pp. 203-220. — Fossil trees, Craigleith.
4. Notes on the Submerged Fossil Trees of Granton Quarry. Proc. R.S.E., viii., 1873, pp. 377, 378. — Do., Granton.
5. Notice of a Pinaceous Fossil lately found in Redhall Quarry, near Edinburgh. Trans. Bot. Soc. Ed., xii., 1874, pp. 167-174. — Do., Redhall.

Lightning-struck tree.

6. Notice of a Tree struck by Lightning. Trans. Bot. Soc. Ed., xii., 1873-76, pp. 497-502. Further note, xiii., Appendix, pp. lvii, lviii.

Polyporus.

7. Notice of a Remarkable Polyporus from Canada. Trans. Bot. Soc. Ed., xi., 1873, pp. 180, 181.

Primula veris.

8. Note on a station for Primula veris in Coldingham Bay, Berwickshire. Trans. Bot. Soc. Ed., xii., 1876, pp. 46-48.

Rhubarb.

9. Recent Researches relative to the Botanical Sources of the Turkey (or Russian) Rhubarb-root of Commerce. Trans. Bot. Soc. Ed., xiii., June 1879, p. 403.

St Fillans district.

10. Address to the Botanical Society of Edinburgh, 1875: The District of St Fillans, Loch Earn. Trans. Bot. Soc. Ed., xii., pp. 395-413.

Trees, exact measurement of, and results obtained.

11. On the exact Measurement of Trees, and its Applications. Trans. Bot. Soc. Ed., Part I., xiii., 1878, pp. 218-234; Part II., xiii., 1879, pp. 394-403. Part III. The Yew. The Fortingall Yew, *ib.*, xiii., 1879, pp. 410-435. Part IV. Influence of the unfavourable Season of 1879 on the Growth of Trees, xiv., 1880, pp. 79-87. Part V. —1. The Growth of Wood in 1880; 2. The Limit of the Growing Months, xiv., 1881, pp. 164-172.

Do.

12. The Exact Progressive Measurement of Trees. Trans. Highland and Agric. Soc. Scot., xiv., 1882, pp. 267-273.

Do.

13. Observations on the Annual and Monthly Growth of Wood in Deciduous and Evergreen Trees. By the late Sir R. Christison and Dr Christison. Trans. R.S.E., xxxii., 1883, pp. 44-56.

Vegetation and poisonous gases.

14. On the Effects of the Poisonous Gases on Vegetation. By Christison and Turner. Edin. Jour. Sc., viii., 1828, pp. 140-149; Froriep Notiz., xx., 1828, col. 177-183; Poggend Annal., xiv., 1828, pp. 259-272. Ed. Med and Surg. Jour., xxviii., 1827, p. 356.

Vegetation, effects of circumstances on.

15. Observations on the Influence of various Circumstances on Vegetation in modifying the Physiological Action of Plants. Proc. R.S.E., i., 1845, pp. 286-288 and 437-439; Froriep Notiz., xiv., 1849, col. 193-195.

VI.—GENERAL SUBJECTS.

Address, R.S.E.

1. Address to the Royal Society of Edinburgh. Proc. R.S.E., iv., 1857-58, pp. 1-17.

2. Address to the Royal Society of Edinburgh. Summary of the Proceedings of the R.S.E. during the first twenty years of its existence. Proc., vi., 1868-69, pp. 392-430. — Address, R.S.E.
3. Address to the Royal Society of Edinburgh. Proc. R.S.E., vii., 1871-72, pp. 531-574. — Do.
4. Address to the Royal Society of Edinburgh. Proc. R.S.E., viii., 1872-73, pp. 2-30. — Do.
5. On the Application of the Rocks of Ben Nevis to Ornamental Art. Proc. R.S.E., xi., 1881-82, pp. 365-368. — Ben Nevis rocks.
6. Observations on the System of Clinical Instruction in the Royal Infirmary of Edinburgh by the Professors of Clinical Medicine, 1848. Neill & Co., Edin. — Clinical instruction.
7. Graduation Address: History of the Medical School, Ed. Univ. Ed. Med. Jour., xii., 1866, Part I., pp. 193-207. — Edinburgh Medical School.
8. Account of an Ancient Image of Oak found in 1880 in the bottom of Ballachulish moss. Proc. Soc. Antiq. Scot., vol. iii., N.S., 1880-81, pp. 158-178. — Image, ancient.
9. Temperature of the Water at great depths in the Scottish Lakes. Proc. R.S.E., viii., 1873, pp. 24-30. — Lakes, deep temperature of.
10. On Medical Education. Ed. Med. Jour., ix., 1864, Part II., pp. 656, 657. — Medical education.
11. Medical Lectures: The Faults with which they are Charged, and the Remedy. A Letter to the President and Members of the General Council of Medical Education: 1864. Neill & Co. — Medical lectures.
12. Graduation under the Medical and Scottish Universities Acts, with an Account of the origin of Universities and Degrees. 8vo, Edin. 1861. — Medical Graduation origin of Universities.
13. Notice of a Remarkable Mirage observed in the Firth of Forth. Proc. R.S.E., vi., 1868-69, pp. 472-475. — Mirage.
14. Note on a White Sunbow. Proc. R.S.E., ix., 1877-78, pp. 542-544. — Sunbow.
15. Observations on the Fresh Waters of Scotland. Concluding part of Address to Royal Society of Edinburgh. Proc. R.S.E., vii., 1871-72, pp. 547-574. — Waters, fresh, of Scotland.
16. Supplementary Remarks on the Fresh Waters of Scotland. Concluding part of Address to Royal Society of Edinburgh. Proc. R.S.E., viii., 1872-73, pp. 24-30. — Do.
17. On the Capture of Whales by means of Poison. Proc. R.S.E., iv., 1860, pp. 270, 271. Ed. New Phil. Jour. xii., 1860, pp. 72-80. — Whales, capture of.

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